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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Chemical Shipping Marks

THE Board of Trade have now given their decision, though in extremely cautious terms, on the representations from the Chemical and Dyestuffs Traders' Association to the effect that "shipping marks" as such should be exempt from the provisions of the Merchandise Marks Act, 1926. The Board are "disposed to think" that the mere presence for transit purposes of the name of a port in the United Kingdom on an outside container would probably not be regarded as an application of the name of a place in the United Kingdom to the goods within the meaning of Section 1, and that consequently an indication of origin would not be required under the Section on that ground alone. Further, the Board are "disposed to doubt" whether such an indication would be required even where the name of the port was accompanied by identification marks, so long as those marks were not obviously the name or trade mark of a firm in the United Kingdom, or an abbreviation of the name of such firm. For this purpose the Board would "not be disposed" to regard a single initial as an abbreviation of the name of a firm.

The Board, having made it clear that this is only an expression of what they are "disposed" to think or do, add this further extremely discreet paragraph: "The matter is, of course, as you will appreciate, one which can only be decided by the Courts, but the Board, as at present advised, would not institute proceedings in respect of an alleged offence where the only mark in question was the name, as above indicated, of a port in the United Kingdom on the outside of the container for transit purposes, even when that name was accompanied by identification marks, so long as those marks were mere identification marks and were not obviously the name or trade mark of a firm in the United Kingdom or an abbreviation of the name of such firm."

What all this comes to in practice is quite simple, as explained in a bulletin on the subject just issued by the Association. In the case of a hypothetical company, such as "A. Brown & Co., London," the firm would not be entitled to use such marks as "A.B.C./London," or "A. B. & Co./London," because these might tend to identify the firm, but they would be permitted to use such innocuous forms as "B/London" or "X.Y.Z./London" without being obliged to give an indication of the origin of the goods (either "foreign" or "made in ——"). Nor, of course, would the firm be entitled to use its own trade mark. The Association appear to be very well satisfied with the results of the negotiations.

Nitrate Competition

THE rapid development in this country of the synthetic nitrogen industry, as our market report of last week showed, is having a marked effect in two directions. By increasing the output of synthetic sulphate of ammonia and substantially lowering the price to the agricultural consumer, it obviously benefits agriculture; at the same time it brings down the price of by-product sulphate, and adds to the difficulties of gas and other concerns engaged in its manufacture. As far as the latter interests are concerned, it is recognised that a new and formidable factor has come into the field for good, bringing with it competition that must be met in some way if the by-product industry is to continue profitable. The only remedies so far suggested are the employment of the best available by-product plant and processes, and the elimination of small, isolated, and probably rather out-of-date plants in favour of the modern centralisation method. Even for the synthetic producer, the achievement of successful production is itself bringing other problems in its train. How is the enormous contemplated production to be absorbed, when the present production is almost in excess of the market needs? The answer, of course, is that nitrogenous fertilisers are not being used to anything like the extent they should be, and that by means of research and propaganda a greatly increased and beneficial demand may be created. Conditions, however, are changing rapidly, and suc-

cessful adaptation of a new and growing industry will need constant resource and alertness.

Even more marked is the competition that is developing between synthetic nitrogen and the natural products of Chile. Recently a chemical engineer, who had been engaged for some twenty years in the Chilean nitrate industry, was speaking to us of the marked effect that the new industry was exciting on conditions in Chile. The Chilean Government appear at last to be sensible of the need for action, if they are to retain their former place in the fertiliser industry. A new law has been passed, it is reported, which creates a control service similar to the U.S.A. Bureau of Mines, and empowers the President to exploit the best nitrate reserves where the owners are neglecting their properties. It also empowers the President to reduce or increase the export tariff without the previous authorisation of Parliament, if such changes are deemed necessary. The law further provides for the granting of loans to producers desirous of developing and perfecting their plants or establishing stores and stocks abroad for the purpose of selling direct to consumers. It endows the Government with authority to adopt measures deemed advisable for the reduction of the transportation expenses of nitrate and securing the lowest price for fuel and other materials required for operating nitrate plants. The law is intended to enable the Government to reduce the cost of production in order that the industry may be able to compete advantageously with "inferior nitrates."

The benefits of the law, it is reported, are already being felt. Exportation, which dropped below 100,000 tons monthly at the beginning of the year, increased to 200,000 tons monthly during June and July, while production, which decreased in February to 70,000 tons, increased in June to approximately 120,000 tons. Since March 12 plants have restarted operations, and 10 are announced to be restarting soon. There are now 35 operating. The price aboard ship in Chilean ports has dropped 15 cents, although the exportation duties have not been decreased. These improvements may possibly be as substantial as they are represented to be, though such reports need to be weighed cautiously, but in any case natural nitrate is up against a powerful rival in the synthetic product, and the competition seems to us more likely to increase than to diminish.

German Chemical Activities

SCARCELY a week passes without some announcement of new German chemical developments which are to revolutionise this or that industry. Our own information is that the German chemists are doing excellent work on their characteristic team basis, and the results, as usual, are sure to find their way into industry in due course, but some of the current reports need to be treated with a certain reserve until at least a little more technical information is disclosed. There seems to be no doubt, however, about the agreement between the I.G. and the Standard Oil Co., though one Press announcement that "as a result of these negotiations a new method of refining the crude oil products of coal distillation has been evolved" is simple nonsense. The process, in any case, cannot be the result of the negotiations; it might very well have been the cause and the subject of them. It is known that the old Badische Co. were steadily at work some time ago on the Bergius method, and it is said that they are now able to produce, by some cracking method, what is called a satisfactory "synthetic petrol." The Standard Oil Co. appear to have acquired the American rights in the process, as well probably as the rights to American distribution, but against this it is stated that the new product cannot be placed on the market until early next year and that it cannot be manufactured in America for sale at less than 1s. 3d. a gallon.

Another report this week refers to some alleged attempt to betray a foreign method for the manufacture of pyramidon, quite a familiar drug. The formula, it is suggested, was found hidden in the socks of the parties, this apparently being a safer hiding-place than in their heads, and most obligingly the suspected persons, it is said, had a draft agreement on them providing for the sale of the formula to British interests, a free passage to England by air, naturalisation in this country, and the payment of a trifling sum of £45,000, and 6 per cent. on the profits. They appear, indeed, to have taken special pains to furnish all the evidence required themselves. It is not surprising to hear that after examination the persons were released, and so far we have not heard of their arrival by air or even by steamer.

Chemical Engineering Examinations

THE papers set at the examination for the Associate-Membership of the Institution of Chemical Engineers last month have just been issued, and the covering note contains a statement which ought to be written in letters of fire across the walls of every examination hall: "A *viva voce* examination took place after the candidates had been entertained to dinner." This is a subject upon which it would be possible to enlarge at length, and with emotion. We see the examiner, as he pours out the appropriate beverage, asking the student what he would like to talk about. Unpleasant recollections obtrude themselves of our own "*vivas*," which, to the best of our recollection, seem to have been carried on by vegetarian teetotallers with unsympathetic faces. The authorities of the Institution, moreover, are apparently anxious to learn from experience. Last year the *viva voce* examination was held before dinner. This year it took place after dinner. In order to complete the series of observations, from which the best method may be inferred, it merely remains to hold next year's *viva voce* during dinner. The last alternative would probably meet with the enthusiastic approval of the students.

To return to the more serious side, the Institution may at once be congratulated on its examination policy. Though things have changed a good deal for the better in the last few years, the old tradition, in which the examiner regarded the unfortunate candidate as his mortal enemy, still dies hard. There remain too many instances in which candidates at examinations fail, not through lack of knowledge, but through examination fright. To a good many examinees, an examination seems less a test of knowledge than a sort of psychological warfare, and in introducing a friendly atmosphere the Institution is taking the right line.

At the same time, it is clear from the papers set that there is no intention of allowing the preservation of a friendly attitude towards the candidates to interfere with the maintenance of a high standard of qualification. There are questions, among others, involving the financial and economic side of production; the design of plant for various purposes; refrigeration, flow of heat, methods of heating plant, etc.; the materials to be employed in the construction of plant for various purposes; and others on many other topics.

The importance of theoretical principles is kept clearly in view, but at the same time the striking thing about the papers is the manner in which the candidate's practical knowledge is tested by a series of questions involving calculation, as well as those (dealing with constructional material, for example) where purely general answers are required. The *viva voce* examination, of course, also acts as a definite barrier to the type of man who wishes to get his qualifications by mere glibness and "slickness" of writing, without having a sound theoretical and practical knowledge of his subject. The recognition of the chemical engineer in this country was somewhat tardy, but the standard set by the Institution should lead to his becoming a very valued member of the community.

Automatic Combustion Control

MODERN boiler practice in large plants demands a degree of exact control which is practically impossible of attainment with manual methods. To attain perfect results would require that the operator of a battery of boilers should take into account boiler pressure, flow of steam, flow of air, rate of feeding fuel, combustion chamber pressure, and other variables in each furnace, and almost continuously make such readjustments of the stokers, fuel feeders, fans, dampers etc., as are indicated to be necessary by the ever-changing conditions. An automatic system of metered combustion control for boiler furnaces is described in Bulletin No. 660, published by the Leeds and Northrup Co., Philadelphia. An electrical current controlled by steam pressure and flow in the steam main, co-operates with air or gas flow meters, furnace pressure meters, and stoker or fuel feeder meters to regulate stokers, fuel feeders, fans, and dampers, as required to preserve constant steam pressure, to secure the desired division of load among boilers, to ensure the most favourable furnace percentage of excess air or CO_2, and to maintain the most favourable furnace pressure. Each fire receives only its allotted air supply, regardless of whether it is thick or thin, or whether one or several fires are fed from a common duct, or whether the furnace is near to or far from the chimney. The quantity of air supplied to burn each pound of fuel is definite.

At the same time, the system permits manual intervention to any desired degree. Some of the boilers of a plant can, at will, be operated under hand control, with fuel and air automatically held in a fixed ratio, while the remaining boilers under full automatic control take care of the fluctuations in steam demand; or individual boilers can be operated by push button control or by actual manual adjustment of dampers, etc., as when bringing a cold boiler up to load. Also, owing to the simplicity and flexibility of the electrical control method, supplementary regulating actions are easily provided, such as variation of the ratio of air flow to fuel feed with load or with temperature of furnaces; compensation of the fuel-feed air-flow ratio from flue gas composition, so as to compensate irregular feeder actions; the proportioning of primary, secondary, and tertiary air supplies to one another or of air supplies to individual zones of a stoker or of a combustion chamber; control of furnace vacuum to a constant value or to a value varying with load; and other regulative effects desirable to meet particular conditions. Apparatus are shown for both stoker and powdered fuel plants, as well as steam flow and pressure charts and CO_2 records illustrating the results attained in commercial plants under automatic control.

Commercial Ethylene Glycol

AN article we recently published described the successful commercial production of ethylene glycol in the United States, and discussed some of its possible effects on the glycerine market. It appears clear from current reports that rapid progress is being made in this field in America. One large corporation announces that, in continuation of its programme for the production of synthetic aliphatic organic chemicals, ethylene glycol mono ethyl ether, commercially known as "Cellosolve," is now available in tank car quantities and at reasonable prices. It is described as practically odourless, a property that makes possible the production of lacquers that can be applied without discomfort for the purposes of interior decoration, the coating of leather, and the enamelling of refrigerator interiors. It is claimed to be "the most powerful nitrocellulose solvent commercially available." Its boiling point is 134° C. but its rate of evaporation is said to correspond closely to that of solvents having boiling ranges of 140° to 155° C. Moreover, it blends freely with practically all other solvents and is itself an effective solvent for gums, oils, and waxes. It contains no ester group, and the production of acidity through hydrolysis becomes impossible. The developments in this direction are being watched with considerable interest in this country, especially by the glycerine industry, and the most recent announcement, from which we have just quoted, may be worth noting.

Books Received

ALUMINIUM BRONZE POWDER AND ALUMINIUM PAINT. By Junius David Edwards. New York: The Chemical Catalog Co., Inc. Pp. 104.

ELEMENTARY PRACTICAL PHYSICAL CHEMISTRY. By James Frederick Spencer. London: G. Bell and Sons, Ltd. Pp. 262. 5s.

ALLEN'S COMMERCIAL ORGANIC ANALYSIS. Vol. V. London: J. and A. Churchill. Pp. 700. 30s.

The Calendar

Aug. 31–Sep. 7	British Association for the Advancement of Science: Annual Meeting.	Leeds.
Sep. 6–9	Institute of Metals: Autumn Meeting.	Derby.
Oct. 23–26	Marcelin Berthelot Centenary Celebrations.	Paris.

Micro-Organisms in Chemical Industry

II (a).—Food Preparation and Preservation

By G. Malcolm Dyson, Ph.D., A.I.C.

We publish this week another of a series of articles by Dr. Dyson on micro-organisms in chemical industry. Previous articles appeared on June 18 and July 9.

Among the various technical matters which demand constant chemical and bacteriological supervision and research, the manufacture of bread and of cereal foods generally occupies a very prominent position. In the first place, the grain itself is subject at all stages of its growth to the ravages of various fungoid pests, and during the making of the final article there are innumerable bacterial reactions called into play each of which furnishes a subject for much-needed research, most of which has yet to be done.

The protective treatment of grain starts very early, for so liable are the wheat and barley crops to attack by fungoid growths, that systematic disinfection of the seeds previous to sowing is very often essential. The reason for this precaution lies in the fact that not only does contamination of the seed previous to sowing lead to a diminished germination percentage and a decreased yield, but it also results in a depreciation of the quality of the grain itself, rendering it more susceptible to attacks by the organism in question. It is, therefore, of fundamental importance that this contamination be avoided and that healthy seed alone be sown.

Grain Pests and Their Treatment

The principal micro-organic growths responsible for these diseases, known locally as "bunt," "smut," or "rust," are various strains of Ustilago and Uroscytis. Those most commonly met with, and the variety of grain with which they are associated, are :—

Oats	Ustilago Avenæ and U. Kolleri.
Barley	Ustilago Hordei and Helminthosporium Gramineum.
Wheat	Tilletia Tritici and Fusarium.
Maize	U. Maydis.
Rye	Uroscytis occulta and Fusarium.

Various processes have been proposed from time to time for the disinfection of the seed-grains from these organisms, and the spraying with or soaking of the grains in dilute solutions of copper or mercury salts, or in a solution of formaldehyde, has been tried. Although a certain measure of success attended these efforts, in every case there was some disadvantage which rendered the process liable to objection. The salts of mercury are far too poisonous for use in this manner, while the copper salts are not sufficiently powerful antiseptics in the dilutions at which it is feasible to use them. In the case of formaldehyde a still stronger objection obtains, in the shape of the injurious action of that compound on the grain itself, lowering the germination percentage considerably. This is illustrated well in the two curves in Fig. 1 below. The solid curve represents the decrease in the germination percentage

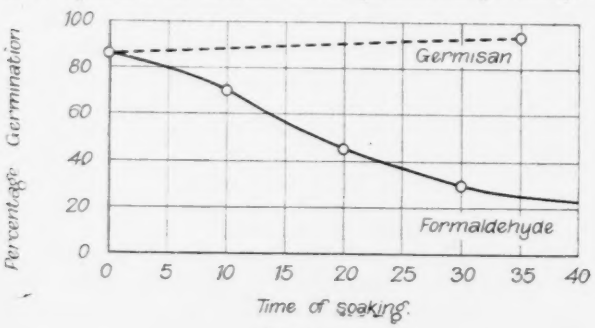
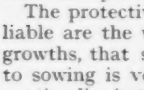


Fig. 1.

as the period of soaking in a solution of formaldehyde (1 in 320) is increased. The dotted curve shows the somewhat surprising fact that soaking in a solution of the recently introduced "Germisan" (1 in 30) slightly increases the germination percentage.

The search for a compound which would sterilise the seed previous to sowing naturally started with the organic derivatives of mercury, and of these several have been discovered that are of considerable importance in this direction. Thus, earlier in the history of these fungicides, the mercurated phenol-sulphonic acids were proved to have considerable value, but their effect is far transcended by that of the two compounds "Uspulun" and "Germisan," the former being manufactured by the Fahlberg-List Saccharin Fabrik and the latter by the Bayer Co. "Uspulun" is said to be the mercury derivative of a chlorinated phenol, while "Germisan" is the cyanide derivative of a mercurated cresol, having the formula



C_6H_3(CH$_3$)(ONa)(Hg.CN). When seed has been treated with compounds such as these, not only are the fungal growths destroyed and a clean crop obtained, but the germination percentage is materially increased. The figures shown give the percentage of "smut" observed in crops grown from seed treated in various ways :—

Treatment.	Percentage of Smut.
Untreated (a)	21·4
Untreated (b)	14·2
Soaked in formaldehyde (1 in 320) 10 mins.	17·1
"Uspulun," 3 per cent., 1 hour	Traces only.
Germisan, 3 per cent., 1 hour	Traces only.

There is no doubt that these organo-mercury compounds are proving of considerable value in the production of clean and healthy crops, the only drawback to their use, at the present time, being their high cost. This, however, could easily be remedied, since the raw materials for such compounds are cheap and plentiful and the process of preparation comparatively simple.

Yeasts

The production of yeast which is to be used for bread-making is another of the industries that requires the co-operation and control of the chemist and bacteriologist. Yeasts used for the manufacture of bread are usually of the *Saccharomyces Cerevisiæ* section, and the selection of a suitable parent strain is of vital importance for the production of a good loaf. Distillers' yeast is usually used for the parent strain, since it has the necessary vitality that is required in a bread yeast, whilst in addition it very readily adapts itself to the environment found in dough. Quite as important, however, as the selection of a suitable strain is the preparation of a medium for the growth of the yeast which is exactly suited to its needs. Barley malt, crushed corn and malt sprouts are the ingredients, which are mixed together with water in the mash tub. The following conditions are necessary for the mash to be of the highest value : In the first place, the water used must be sterile and sufficiently acidified with dilute sulphuric acid to convert any calcium or magnesium bicarbonates to the sulphates, the presence of which play an important part in the nutritive cycle of the yeasts. In the second place, the barley malt must have a high diastatic efficiency, and it is important that the sprouts should have as high a content of asparagine as possible, since it has been shown that the presence of this amino-acid stimulates the fermentative powers of the yeast.

The mash when prepared is allowed to digest at 50° to 55° C., when the proteolytic enzymes of the malt split up the proteins present into smaller units ; further digestion at 65° C. for several hours follows, in which the starch is split up into easily fermented sugars by the diastase. The liquid is now ready for inoculation, but before the yeast is added it must be protected against the growth of undesirable organisms. As was mentioned in a previous contribution, the presence of *Bacillus Butyricus* not only leads to the formation of quantities of undesirable butyric acid, but at the same time almost extinguishes the growth of other organisms. In order to avoid the growth of this undesirable organism, a concentration of lactic acid is set up, of such a strength that the putrefactive bacteria are unable to flourish. This is done by inoculating

the mash with a pure culture of *B. Acidi Lactici*, which is allowed to grow until the concentration of acid in the solution is about 1·4 per cent. The medium is then sterilised, filtered and cooled, after which the inoculation with pure yeast culture takes place. At the temperature of the vat—22° C.—multiplication of the yeast cells takes place at a very rapid rate and the temperature rises to 28° to 31° C., at which temperature the whole culture is maintained. The yeast can grow at higher temperatures, but a considerable loss in the yield of the product is experienced.

In fermentations, such as that described above, in which the sole purpose is the production of yeast suitable for bread-making, the process of "aeration" is often advantageously practised, and fine streams of compressed air are forced through the fermenting liquid. This procedure removes much of the carbon dioxide present and appears to stimulate the reproduction of the yeast. At the same time it decreases the amount of alcohol which is produced in the fermentation, and thus increases the final yield of yeast. When the fermentation is over the yeast is separated by centrifuging and the majority of the water removed by pressing. This leaves the yeast in the form of a moist cake, in which state it usually appears in commerce.

The Functions of Yeast in Bread-Making

Yeast which is intended for use in connection with the manufacture of bread has several important functions which it must fulfil. It not only leavens the bread, making it light and easily digested, but also assists in the maturing of the gluten, and has even been stated by some to contribute enzymes and vitamins to the bread. That its action in many ways is dependent on enzyme action is apparent, but that the enzymes are of any value *per se*, or that vitamins are capable of escaping destruction by baking, has yet to be demonstrated. As a leavening agent the function of yeast growth is to produce the tiny bubbles of carbon dioxide associated with the "rising" of the bread. The technical details of bread-making are not within the scope of this article, but attention is drawn to the fact that aeration is by no means the sole function of yeast fermentation. If such were the case there would be no logical or practical reason against the replacement of yeast by chemical "raisers" producing the same amount of carbon dioxide in a similar manner. In actual fact, however, the yeast contributes considerably to the flavour of the bread, since it indubitably produces traces of caproic and caprylic acids, esters, etc., which add materially to the flavour; and without yeast, too, the "zest" due to the small amount of lactic and butyric fermentations would be lacking.

Apart from the manufacture of bread there are several fermentative processes which when once set up in the dough render it, or the bread made from it, almost useless as a foodstuff. These so-called "diseases" of bread may be classified thus:—

1. Slimy Bread.
2. Red dough.
3. Sour bread.
4. Bitter bread.

Diseases of Bread

"Slimy" bread is due to the advent of a bacillus which has its natural habitat in diseased potatoes, and was much more common in the old days of potato barm than it is now, when yeast from a comparatively pure culture is almost exclusively employed. The disease is attended by the gradual appearance of a stickiness in the bread, which finally becomes "ropy" and acquires a sickly smell. There are two forms of the organism responsible for this condition, known as *Bacillus Panis Viscosus I* and *II*. The organisms stand boiling water for half an hour, and boiling for this period on three consecutive days fails to kill them. The advent of "ropiness" in a bakehouse where it is of comparatively frequent occurrence can be easily avoided by the addition of about ½ pint of lactic acid to each 100 lb. of flour. The acidity created is very unfavourable to the growth of *B. Panis Viscosus*.

The presence of chromogenic bacteria such as *Micrococcus* or *Bacillus Prodigiosus* gives rise to a red stain, and the presence of various other chromogenic bacteria may give rise to bluish, green or yellow stains. Their occurrence is comparatively rare. Of more frequent and general occurrence is the condition known as "sour-bread," which is characterised by the extensive growth of *B. Acidi Lactici* or *B. Butyricus*. These organisms occur so freely in the atmosphere and raw materials of the bakehouse that it is almost impossible to prevent their access to the dough; indeed, their presence in moderation is not undesirable, but when fermentation is completed and the bread is "over-proofed" and they grow to excess, the batch becomes soured. The only precaution that can be taken is that of not continuing the proofing longer than is necessary to complete the yeast fermentation.

"Bitter" bread has not yet been observed to any extent in this country, and the cases which have occurred from time to time on the Continent were in all probability due to carelessness or contamination with putrefactive matter not likely to occur in a well-conducted bakehouse. The bitterness of the bread, which is quite appreciable to the taste, is due to growth of the organism *Fusarium Roseum*. It has been observed also that bread so contaminated becomes poisonous, and severe symptoms have arisen from eating it.

In addition to the manufacture of bread, there are several other branches of the foodstuffs industry in which the main processes of production are dependent on the action of micro-organisms. These comprise, in addition to the manufacture of alcoholic beverages, the manufacture of vinegar, beverages such as cocoa and coffee, the ripening of dairy products and the manufacture of margarine, and certain of the staple mould-fermented products of Japan.

Fluorine and Cancer

To the Editor of THE CHEMICAL AGE.

SIR,—Dr. Hodgkinson's letter, "Fluorine and Cancer," raises many interesting points in connection with this element. Possibly you, sir, may be in a position to approach some physiologist to ascertain whether any comparison has ever been made between, say, the fluorine-phosphorus ratios in human bones and teeth, in health and in disease, to-day and a century or so ago.

This ratio is one that has long interested me, and for this reason. In the raw phosphate rock that comes into this country to be turned into fertilisers, fluorine is always present to a small extent, roughly of the same order as is found in bones and teeth. This perhaps is what might be expected, since these phosphate deposits, although sometimes found hundreds of miles inland, are of marine organic origin. In the conversion of such phosphates into superphosphates, the fluorine is always eliminated, and therefore a fluorine-free fertiliser is produced. It seems wrong that this element should be thus removed from the vital cycle, and this must naturally make it all the more difficult for us to obtain the little we want. The fact that we can still grow bones and teeth (of a sort) is presumably due to the quantity of foreign wheat and meat we consume, grown in countries where fertilisers are not yet needed.

The late Professor Armand Gautier contributed many papers on this subject to the *Comptes rendus* between 1912 and 1919. One in particular is entitled "*Etat et rôle du fluor dans l'organisme animal.*" As regards the possibility of fluorine having a direct fertilising value of its own, he claimed to have established this in a number of pot and plot experiments. It is to be hoped that work is still being carried on on this subject, to investigate the part played by fluorine in animal and vegetable life. It is possible that the true value of this element may have been overlooked.—Yours, etc.,

A FERTILISER CHEMIST.

New Edition of "Official Chemical Appointments"

THE Institute of Chemistry has issued the sixth edition, revised and enlarged, of *A List of Official Chemical Appointments*, the last edition of which was issued in March, 1924. The number of pages is 335, as compared with 310. The lists deal with appointments both in Great Britain and abroad, including Government appointments; appointments with municipal authorities; appointments in educational institutions, etc. There are appendices dealing with scientific societies and institutions; with legislation, orders, regulations, etc., relating to the Sale of Food and Drugs Acts, 1875–1927; and with information for the guidance of intending candidates for official appointments overseas. There are the usual indexes of names and places. It is hardly necessary to say that this excellent publication is indispensable to every chemical bookshelf.

B

The I.G.-Standard Oil Agreement

Cracking and Coal Liquefaction Methods

It is announced that an agreement has just been signed whereby the I.G. Farbenindustrie will combine with the Standard Oil Co. of New Jersey in producing a new form of synthetic petrol. Herr Duisberg, chairman of the German Dye Trust and of the Federation of German Industries, and Mr. Walter C. Teagle, president of the Standard Oil Co., presided at the recent negotiations in Heidelberg.

The Cologne correspondent of *The Times* states that whatever may have been postponed for final settlement at future meetings in the United States, it is safe to say that fairly conclusive plans were arrived at. The new process may be broadly defined as an improvement on the cracking method of refining the products of coal distillation, but beyond this it is at present impossible to go. The new discovery had a more or less accidental origin in the course of some coal distillation experiments which the I.G. have been carrying out for some time. The cracking method is at present commercially impracticable, as the petrol obtained cannot be marketed at a price competing with that of fuel derived from natural petroleum. It is in this direction that the new process is said to excel the cracking method. The raw materials must still, however, be derived at a cost which is disproportionally high to the market value of the finished product, and it is principally for this reason that the I.G. has found it necessary to come to an understanding with the Standard Oil Co.

Possible Arrangements with European Countries

It is probable (states *The Times* correspondent) that the I.G. will negotiate with the other European countries concerning the realisation of patent rights relating to the process as the agreement with the Standard Oil Co. relates either chiefly or solely to the American markets. The Shell petroleum group is associated with the International Bergius Co., and negotiations in regard to patent rights will probably be commenced with the Shell group in the near future. It is stated that the I.G. has no intention of creating a monopoly of chemically derived petrol. With regard to the commercial prospects of the new process, matters are at present in an experimental stage, and it is doubtful whether either the I.G. or the Standard Oil Co. has been able to compute even roughly what commercial returns may be expected from the new process. The I.G. factories at Merseburg have been occupied for some time past in coal distillation on a large scale, but no synthetic petrol resulting from these activities has yet made its appearance on the market.

According to information received from the United States, the Standard Oil Co. has issued a *communiqué* stating that "an experimental agreement" endowing the company with the right to manufacture in the United States synthetic petrol obtained from brown coal by the Bergius method has been arrived at. It is added that the production of synthetic petrol by this means is not contemplated in the immediate future, as the costs of manufacture would be excessive, and also because the market is, in any case, oversupplied with ordinary petrol. Though this *communiqué* may be accurate, it is not adequate. According to the best evidence available in Germany, two agreements have been arrived at as a result of the Heidelberg discussions. The one quoted in the Standard Oil Co.'s *communiqué* is of secondary importance and is entirely distinct from the new method alluded to.

Bibliography of the Mellon Institute

The Mellon Institute of Industrial Research of the University of Pittsburgh has just issued Bulletin No. 2 of its Bibliographic Series, being "A List of the Books, Journal Contributions, and Patents by Members of the Mellon Institute of Industrial Research, 1911–27" (pp. 80), compiled by Lois Heaton. The nature and variety of the work carried on by members of the Institute is indicated by the fact that the list of journal contributions covers 34 pages, and that of United States patents 17 pages, while there is also a list covering 13 pages of patents taken out in many other countries. Complimentary copies of this publication will be sent to research directors, science teachers, and librarians who desire to obtain it.

Surveying Oils and Minerals: An Investigation

An investigation to be jointly financed by the Australian Government and the Empire Marketing Board into methods of surveying for oils and minerals within the Empire has received the approval of both parties concerned. It is anticipated that the work (which will be conducted under the guidance of a competent expert, and is likely to prove of value to many parts of the Empire) will take two years to complete. There are within the Empire large areas of proved metalliferous value, in which the natural outcrop of the rocks is obscured by an overlying blanket of recent geological age, which in many cases is comparatively shallow, but renders the task of the geologist and of the prospector both difficult and expensive. In particular, the West Australian fields may be mentioned. Very similar conditions obtain in large portions of Canada. During recent years science has evolved certain methods whereby an indication of the probability of the existence of minerals or of oil may be detected without the necessity of boring. Certain mineral-bearing bodies, for example, may be better electrical conductors than the surrounding rock. In other cases, differences in the density of the ground below the surface may indicate the existence of oil or of metal-bearing structures, and here gravimetric methods are used. Hidden deposits may also have definite magnetic properties. Other methods suggested and, to a certain extent, tested include investigations of the elasticity of rock structures which involve the study of the passage of sound.

New Issue of Ship Canal Cement Shares

The directors of the Ship Canal Portland Cement Manufacturers, Ltd., on Monday evening sent out to the ordinary shareholders, who were registered in the books of the company on July 15, an offer of 1,100,000 ordinary shares of 4s. each, in the proportion of 11 new shares for every 14 shares then held. The issue price is 5s. per share, payable 3s. (including 1s. premium) on August 11, and 2s. on October 11. The new shares when fully paid will rank *pari passu* with the existing ordinary shares. Renunciation rights are given, and allotments will be split. This issue is in accordance with the proposals put forward by the directors at the annual meeting on July 8, when it was stated that it was proposed to increase the ordinary capital from £280,000 to £1,000,000, and to issue at once 1,100,000 shares at a premium of 1s. per share. The issue of the shares was to be guaranteed by the British Cement Products and Finance Co., in conjunction with the Associated Anglo-Atlantic Corporation, Ltd., who are substantial holders of ordinary shares.

International Leather Chemists' Conference

A conference of the International Society of Leather Trade Chemists will be held at the Leathersellers' Hall, London, on September 12, 13, and 14. Scientific commissions and mixed technical commissions will hold separate meetings during the conference. In addition to the technical meetings, there will be a reception of members at the Leathersellers' Hall by the president (Professor D. McCandlish), supported by the Master of the Leathersellers' Company (Mr. H. C. Dove) and the presidents of the Chemical Society; the Institute of Chemistry; the Society of Chemical Industry; the Society of Dyers and Colourists; the British Association of Chemists, and the Royal Microscopical Society. There will also be a dinner at the Hotel Cecil, by invitation of the members of the British Section of the International Society. The Chemical Industry Club, 2, Whitehall Court, S.W.1, have granted facilities for the use of the Club during the period of the conference to those attending.

Silver Wedding of Sir Ernest Benn

At the annual meeting of the shareholders of Benn Brothers, Ltd. (publishers of this journal), which took place on Thursday, August 4, a resolution was passed congratulating the chairman of the company, Sir Ernest J. P. Benn, on the approaching silver wedding of Lady Benn and himself, which falls on January 3, 1928, and asking him to accept, on that occasion, his portrait in oils as a mark of appreciation, confidence, and friendship.

Bouverie House Tours of London

THE tour on Tuesday was a little off the beaten track of London's usual sightseeing expeditions, and those who attended learnt from Mr. Allen S. Walker a mass of interesting facts about the Order of the Hospital of St. John of Jerusalem, whose historic buildings at Clerkenwell were visited. The first buildings of the Order were largely destroyed by Wat Tyler and his rebels in 1381, and the present structure was erected by Prior Docwra in 1504. At the Reformation the Priory was the last of the religious houses to be suppressed, and although Queen Mary in 1537 restored to the Order its charter and properties, Queen Elizabeth, in the following year, drove the knights from England, and the English "langue" or branch was unable for several centuries to continue its assistance to the headquarters of the Order in Malta. In 1888 Queen Victoria granted a new charter to the English Order, under which its work is carried on. The party proceeded up a narrow sixteenth century winding staircase into the Chancery Hall, where Dr. Johnson, then in humble circumstances, used to write his Parliamentary reports, and where David Garrick, the actor, rehearsed his parts, assisted by printers who worked there. In the Chapter Hall is a mantelpiece of the early sixteenth century, several specimens of armour, and a collection of paintings, mainly of French priors of the Order, accounted for by the fact that on the suppression of the English branch, the French branch still existed. The present Priory Church of the Order, next visited, is peculiar in that the choir stalls face the altar. The crypt is the oldest part of the church and dates back to about 1100.

The next tour is on Wednesday, September 7, to St. Paul's Cathedral. Applications for tickets should be addressed to THE CHEMICAL AGE, Bouverie House, Fleet Street, E.C.

Gypsum Production in Canada in 1926

GYPSUM production in Canada advanced to a new high mark in 1926, according to finally revised statistics just issued by the Mining, Metallurgical, and Chemical Branch of the Dominion Bureau of Statistics at Ottawa. Increases in tonnages shipped were recorded in all producing provinces except New Brunswick. The total production for the year was 883,728 tons, worth $2,770,813, as against 740,323 tons, worth $2,389,891, produced in 1925. Gypsum quarried in 1926 totalled 931,193 tons, of which quantity only 161,841 tons or 17·4 per cent. was calcined in Canada. Importations of gypsum, all grades, into Canada were recorded at 6,298 tons, worth $119,141, as against 8,921 tons, with a valuation of $136,308, imported in 1925. Canadian crude gypsum exported principally to the United States, amounted to 668,064 tons in 1926. Ground gypsum and prepared wall plaster exported during the year totalled 10,062 tons. The United States, Newfoundland, Australia, and New Zealand were the principal importers of these materials. The capital employed in this important Canadian mining industry in 1926 was reported at $6,696,077. Employment was furnished to 68 salaried employees, 891 mine workers and 409 mill workers; their combined earnings were $1,255,427. The cost of fuel used during the year was $182,726, while the electric power consumed required a further outlay of $58,688. Plant equipment included 146 electric motors with a combined rating of 4,432 h.p.

Vacant Appointments

A Professorship of Chemistry in the University of Melbourne, Australia, £1,200. The Agent-General for Victoria, Victoria House, Melbourne Place, Strand, London. October 1.

Angas Professorship of Chemistry in the University of Adelaide, South Australia. £1,100. The Agent-General for South Australia, Australia House, 112, Strand, London. October 1.

A Lectureship in Chemistry in the University of Western Australia. £450–550. The Agent-General for Western Australia, 115, Strand, London. October 1.

A Junior Assistantship in Chemistry in the Agricultural Department, Marischal College, Aberdeen. £200. August 27.

A Lectureship in Fuel Technology. £360.—The Sensible Heat Distillation, Ltd. (Coal Research), Fellowship. £175–£200. Both in the Department of Chemical Technology of the Imperial College of Science and Technology, London, S.W.7. The Registrar. August 31.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries :—

68 ("*Cresswell's Compound*").—"We would be glad if you would give us the names and addresses of firms who manufacture Cresswell's Compound."

69 ("*Aerofloat*").—An inquirer desires information (makers, etc.) regarding "Aerofloat," a flotation material used in copper mines.

Japanese Production of Chemicals in 1925

ACCORDING to an official report recently published, the number of chemical factories in Japan was 2,498 at the end of 1925, the number of persons employed in factories being 123,063. The following figures for the chemicals produced are taken from the report :—

	lb.
Sulphuric acid	1,156,151,029
Hydrochloric acid	51,549,808
Nitric acid	15,929,930
Sodium sulphate	63,927,579
Sodium carbonate crystal	1,910,702
Soda ash	24,607,824
Caustic soda	56,048,164
Potassium chloride	1,558,287
Potassium nitrate	428,810
Iodine	35,717
Potassium iodide	95,737
Alum	7,405,262
Aluminium sulphate	32,753,449
Bleaching powder	81,320,480
Acetic acid	8,759,447
Tannic acid	208,400
Carbolic acid	13,230
Calcium acetate	683,700
Acetone	475,035
Methyl alcohol	1,152,103
Glycerine	2,666,450
Zinc white	14,238,557
Litharge	1,396,079
Red lead	10,923,737
Barium sulphate	3,875,230
Lithopone	3,104,756
Lead white	173,600
Carbide of calcium	70,509,793
Carborundum	669,834 kwan.
Potassium sulphate	213,940
Lime-nitrogen	13,243,072

Explosion Caused by Bitumen Fumes

THE two inspectors who held a public inquiry into the explosion which wrecked a shop at Acton and killed a woman in February have come to the conclusion that it was caused by fumes from a casing of bitumen melted by a short circuit of the electric cables laid in it. Professor R. V. Wheeler, of Sheffield University, stated that the Acton explosion seemed to show that ignition did actually occur in the absence of any of the ordinary sources of ignition. All serious explosions as a consequence of short circuits of mains had occurred with mains laid in bitumen and with direct current.

The Dating of Patents

THE committee appointed by the President of the Board of Trade to inquire into the dating and sealing of patents have issued their report. In the opinion of the committee, no change is desirable in the existing practice in the United Kingdom as to the dating and sealing of patents. If, however, for any reason it should be considered expedient to make a change, the committee recommend that such a change should be limited to an alteration in the term of the patent whereby the fixed portion of the monopoly period would run from the filing of the complete specification.

From Week to Week

GERMAN BLACK SILK DYERS engaged in the artificial silk industry have been awarded an increase of 11 per cent. in the hour rate wages as a result of the arbitration in the recent wages dispute at Krefeld.

A CHLORINE CONTAINER BURST at a factory at Grenoble, France, last week, and the gas descending on the town and setting the inhabitants sneezing, nearly caused a panic. Workmen in gas masks succeeded in entering the factory and shut off the gas escape.

EXPLOSIONS WHICH DEMOLISHED A ROOF and blew away part of a wall occurred during a fire at the premises of the York Raising, Dyeing and Finishing Co., Bewick, on Saturday morning. The explosions are thought to be due to fire reaching some chemicals stored in the building.

DR. T. F. BAKER, president of the Carnegie Institute, Pittsburgh, is at present visiting Europe, in order to investigate the nitrogen industry and the utilisation of coal in Great Britain, France, and Germany, as well as in connection with the Second International Coal Conference, which will be held at the Institute in 1928.

THE PONTEFRACT CORPORATION are notifying the Yorkshire Coking and Chemical Co., Ltd., and the Glass Houghton and Castleford Collieries, Ltd., that the Corporation and the Pontefract Race Co. will hold the two companies responsible for any loss or damage to the pasturage, hedges, trees, etc., and to the race track and buildings in the park which may be caused by fumes from their works.

A SILVER MEDAL is being offered by the Royal Agricultural Society for a monograph or essay giving evidence of original research on any agricultural subject, on any of the cognate agricultural sciences, or on agricultural economics. Candidates, of not more than 30 years of age on September 29, 1927, must reside in Great Britain or Ireland. The monograph or essay must be forwarded to the secretary of the Society on or before October 31.

THE ATMOSPHERIC NITROGEN CO. OF AMERICA has awarded a contract for the construction of a steam-electric power plant at Hopewell, Va., where an enormous factory for the recovery of air nitrogen will be built. The power plant alone will cost over $5,000,000, and the whole plant when completed will be one of the largest manufacturing units in the United States. The company, of which the Atmospheric Nitrogen Co. is a subsidiary, has been producing air nitrogen on a comparatively small scale at Syracuse, N.Y., where several million dollars have been spent in research work.

MISS C. F. ELAM, D.Sc., one of the two women members of the Iron and Steel Institute, has been awarded the scholarship provided by Sir Robert Hadfield to the Second (Triennial) Empire Mining and Metallurgical Congress which will open in Canada on August 22. Miss Elam, who is engaged on research work at the Royal School of Mines, was formerly a biological student, but began to specialise in metallurgy at the National Physical Laboratory. She was granted the Research Fellowship of the Armourers and Braziers Company and was formerly assistant to Professor H. C. H. Carpenter.

MR. GREENING, manager for the Agricultural Division of Fertilizer Sales, Ltd., in evidence before the Royal Commission on Agriculture in India on Thursday, August 4, gave details of the methods adopted to popularise new and improved fertilisers. He urged that thorough investigations with calcium cyanamide should be conducted at suitable centres. Such experiments might be expected to produce results of the greatest practical value in certain districts. The evidence to be taken before the Commission in London has now been concluded, and the Commission is now returning to India.

THE NITRATE PRODUCERS' ASSOCIATION reports that sales of nitrate of soda under the free selling system during the fortnight ended July 31 amounted to 99,029 metric tons, for delivery up to May, 1928, bringing the total of these sales since the introduction of free selling on April 14 last up to 1,196,794 metric tons. Rumours have been current that the Chilean Government is again considering the modification of duties after June 30, 1928, but no definite conclusion has been reached. Four more oficinas have notified their intention to reopen, so that by October 49 oficinas should be in operation. In July 36 oficinas were producing.

DR. H. H. MORGAN was present at the Tenth Annual Canadian Chemical Conference, representing the Society of Chemical Industry. At the annual banquet of the conference he stated that it was understood in England that there must naturally exist problems in Canadian chemistry that were peculiar to the country itself. English chemists did not wish to interfere in any way in the development of Canadian affairs. The work the Society of Chemical Industry was doing, he hoped, would not be curtailed in Canada, and he felt that this was the wish of all Canadian chemists. The Society as a whole would always be proud of the pioneer work that it was permitted to accomplish in Canada, and he was sure that all English chemists would watch with great interest the enormous developments that must follow the utilisation of Canadian resources.

SIR JOHN RUSSELL, director of the Rothamsted experimental station, and Mr. E. R. Sawyer, director of Agriculture and Forests for the British Government in Palestine, are members of the British delegation to the First International Congress of Soil Scientists, in Canada.

THE BELGIUM CYANAMIDE COMPTOIR has published the new season's prices, which vary from frs. 126 per ton, August delivery, to frs. 131, February-March. These prices show reductions varying from 5½ per cent. for August to 15 per cent. for February-March, as compared with last year.

MR. HERBERT SKINNER, president of the Pharmaceutical Society of Great Britain, and Mr. Thomas Marns, a member of the council, sailed for Canada and the U.S.A. in the *Albertic* on Friday. They will study Canadian and American pharmaceutical legislation and conditions and will inspect drug factories.

FOLLOWING AN EXPLOSION this week in the sulphur crushing room, a fire broke out at the Crown Chemical Works, Mitcham Common, and, owing to the choking fumes, there was for a time some difficulty in dealing with the outbreak, but it was extinguished in about an hour. No one was injured and the output of the works has not been affected.

PREPARATIONS ARE PROCEEDING IN MONTREAL, CANADA, for the celebration, in October, of the centenary of the birth of Marcelin Berthelot. The celebration will be carried out by an executive committee headed by Sir Lomer Gouin, former Premier of the Province of Quebec, and is being arranged to coincide with the celebrations in France. The nature of the celebration has not yet been disclosed, but it will probably take the form of an educational campaign to bring the name of Berthelot and his work prominently before the public.

RECENT WILLS INCLUDE: Mr. F. G. Skelton, of Bradford, late of Skelton Brothers, soap manufacturers, £53,168.—The late Lady Henry, after numerous bequests, left the residue of her property in trust in perpetuity for the purpose of providing by income scholarships for British subjects, tenable at American universities, and scholarships for American subjects, tenable at English universities, such fund to be known as the Charles and Julia Henry Fund.—Mr. Edward Day Gravill, F.C.S., managing director of William Hay, Ltd., manufacturing chemists, Hull, £14,057 (net personalty, £8,913.

UNIVERSITY NEWS.—*London:* Miss Mary Leslie, of Dundee, has been appointed demonstrator in organic chemistry at Bedford College.—Mr. G. Evans, C.I.E., M.A., has been appointed principal of the Imperial College of Tropical Agriculture. Included in the many positions he has held abroad are those of director of Agriculture to the Mesopotamia Expeditionary Force, 1918-1919, and afterwards director of cotton culture to the Queensland Government. The Commonwealth Government of Australia has decided to contribute £250 a year for five years to the Imperial College of Tropical Agriculture.

AN EXPLOSION IN THE CHEMICAL LABORATORY of Kingsbury County School, Hendon, caused injury to four fire brigade officers on August 7. The caretaker noticed fumes and flames in the laboratory and gave the alarm. When the firemen arrived they poured water on the smouldering chemicals, and immediately there were two loud explosions. The men were blown backward through the doorway and their faces and arms were burned, while some of them were slightly gassed by the fumes. The structure of the building was not affected, the only damage being to a store cupboard and bottles containing chemicals.

Obituary

MR. KENNETH HARWOOD CROSSLEY, only son of the late Dr. A. W. Crossley, in his 23rd year.

MR. HENRY FREDERICK VANN, aged 19, a chemistry student at the Leicester Gas Works. He walked across a bed of pitch, believing it to be cool. The pitch, however, was still hot, and he sank in and was fatally burned.

MR. H. W. LEAVENS at South Yarra, Melbourne, on June 25, aged 74 years. He was one of a number of metallurgists who went to Australia in the 'eighties, and was formerly chief chemist to the Broken Hill Proprietary Co., and afterwards chief metallurgist.

COL. JAMES PATCHETT, D.L., a member of the Chemical Society, and of the Iron and Steel Institute, at Hadley, near Wellington, recently. Col. Patchett was well known in the metal industry, being a director of the Union Steel Corporation (of South Africa), chairman and managing director of the Shropshire Iron Co., Ltd. He was also a member of the Midland Iron and Steel Wages Board, of the Birmingham Iron Exchange and several employers' associations.

MR. ROLAND BARFORD, B.Sc., colour chemist, recently, at Sydney, Australia, aged 27. Mr. Barford, who, only seven days previous to his death, took up a position as dyeworks manager with R. C. Henderson, Ltd., hat makers, accidentally drank a cyanide solution in mistake for water during lunch at the works, and died instantly. He was educated at Mill Hill School and Leeds University. In 1917 he joined the Navy, later being transferred to the Air Force. Returning to the University after the war he studied colour chemistry and took his B.Sc. degree a year ago.

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Abstracts of Complete Specifications

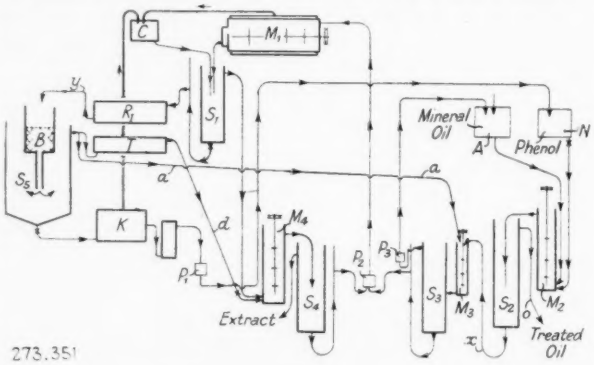
273,347. DYESTUFF INTERMEDIATES. J. Thomas, H. A. E. Drescher, and Scottish Dyes, Ltd., Earl's Road, Grangemouth, Scotland. Application date, December 24, 1925.

This process is particularly for the production of dyestuff intermediates from (halogen)-2-benzoyl-benzoic acids except (3^1-nitro-4^1-halogen)-2-benzoyl-benzoic acids. These acids are treated with a sulphite or bisulphite, especially neutral alkali sulphite solution at a temperature above 100° C. and a corresponding pressure of 100–120 lb. per square inch. Examples are given of the treatment of the sodium salt of (4^1-chlor)-2-benzoyl-benzoic acid with sodium sulphite to obtain (4^1-sulpho)-2-benzoyl-benzoic acid, which can be converted by condensing agents, *e.g.*, sulphuric acid into the anthraquinone sulphonic acid; (chlormethyl)-2-benzoyl-benzoic acid with sodium sulphite and the product with oleum to obtain the anthraquinone-1-methyl-4-sulphonic acid; (3 : 4 : 5 : 6-tetrachlor)-2-benzoyl-benzoic acid with sodium sulphite and the product with oleum to obtain a dichlor disulphonic acid; and corresponding reactions to obtain other sulphonic acids. This reaction enables anthraquinone-2-sulphonic acid to be prepared without isomeric bodies as by-products. The process is not confined to (halogen)-2-benzoyl-benzoic acids in which the halogen is attached to the benzene nucleus not containing the carboxylic acid substituent but can be applied to (halogen)-2-benzoyl-benzoic acids and their derivatives including those containing halogen in the benzene nucleus to which is attached also the carboxylic acid substituent, *e.g.*, the halogenated benzoyl-orthobenzoic acids obtained by condensing halogenated phthalic anhydride with benzene and its derivatives.

273,351. MINERAL OILS AND/OR THEIR DISTILLATES, PROCESS FOR REFINING. The Burmah Oil Co., Ltd., 175, West George Street, Glasgow, Scotland. From J. P. Fraser, Syriam, Burma. Application dates, January 25, and September 21, 1926.

The process is for removing aromatic and unsaturated hydrocarbons and their polymerisation and oxidation products from mineral oils or their distillates. It has been found that when the oil is shaken with pure phenol below 60° C. and then allowed to rest, the lower phenol layer contains most of the aromatic and unsaturated hydrocarbons and some paraffins and naphthenes. The proportion of the latter is less the more water contained in the phenol, but the proportion of unsaturated aromatic hydrocarbons is greater. It is also found that the phenol can be freed from the hydrocarbons by solution in a large quantity of water. The purification of the phenol is therefore effected by agitation with water which may or may not contain some phenol, at a temperature above 70° C., the water being in such quantity that it afterwards has a phenol concentration of 15–20 per cent. The top oily layer is then separated and washed with a large excess of water above 90° C. which is afterwards used for the previous stage. The lower layer is cooled below 40° C. and the emulsion broken by centrifuging or filtering, and the phenol and aqueous layers separated. The phenol is concentrate and used again.

The mineral oil and phenol (containing 5–15 per cent. of water) pass from tanks A and N to a mixer M_2 and then to a separator S_2. The mineral oil overflows at *o* to a tank where it is washed with caustic soda. The phenol with absorbed hydrocarbons passes by a pipe *x* to a mixer M_3 where phenolic water is added from a pipe *a*. The mixture passes to a separator S_3 where the oil is drawn off to a pump P_3 and tank A. The phenol passes to a pump P_2 and is mixed with hot phenolic water and forced into a mixer M_1. The phenolic water employed is derived from tank T through a mixer M_4 and separator S_4. The mixer M_1 is heated to 100° C. and vapour is passed to condenser C. The liquid passes to separator S_1, the hot phenol solution forming the lower layer while the hydrocarbons overflow into mixer M_4 where they are washed with hot phenolic water to reduce the phenol content to 10–15 per cent. Liquid from the mixer M_4 passes to the separator S_4 where the hydrocarbons overflow through the pipe *g* and are then washed with caustic soda. These hydrocarbons consist mainly of aromatic and unsaturated bodies and resinous matter. The phenolic solution from the vessel S_1 passes to a cooler R, and then through pipe *y* into a vessel B.



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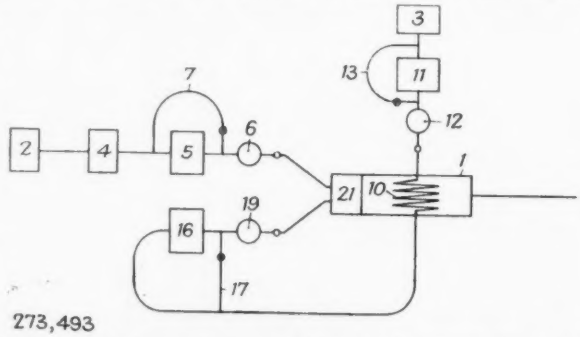
On cooling the phenol separates from solution in the water and is de-emulsified in passing through granulated bauxite in the vessel B. Phenol collects in the bottom of the vessel S_5. The phenolic water is drawn off to a vessel T where it is heated to 100° C. and returns through a pipe *d* to the system. The phenol separated in the vessel S_5 contains 27 per cent. water, and is concentrated in a still K, and then passes through a cooler D and pump P_1 to the tank N, and the cycle then recommences.

273,493. PRODUCING BENZENE BY REACTION BETWEEN PHENOLIC VAPOURS AND A REDUCING GAS. A. Irinyi, 54, Mittelweg, Hamburg, Germany. Application date, July 8, 1926.

Phenolic liquid obtained from coal distillation passes from a tank 2 through a vaporiser 4 and superheater 5 to a mixer 6. Some vapour may be by-passed through a pipe 7 to the mixer. Gases containing hydrogen pass from a vessel 3 through a heater 11 where the temperature is raised above the reaction



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point, to a mixer 12. Some cold gas is by-passed through a pipe 13 to regulate the temperature in the mixer 12. The gas then passes through a heat interchanger 10 in the reaction chamber 1, and then through a further heater 16 to a mixer 19. Some gas is by-passed at 17 so that the temperature of the gas entering the chamber 21 is exactly regulated, which is necessary for the production of benzol.

273,528. DISTILLATION OR HEAT TREATMENT OF CARBONACEOUS OR LIKE MATERIALS. Salermo, Ltd., Imperial House, 17, Kingsway, London, and E. M. Salerni, 31, Rue Tronchet, Paris. Application date, September 15, 1926.

The crushed material is moved continuously in a thin layer over a flat metal plate in a drying chamber in counter-current

to the hot waste gas used for the distillation. The dried material is passed through a seal into an externally heated distillation chamber where it passes through a series of open topped troughs arranged side by side, containing stirrers to prevent agglomeration. The material is subjected to progressively increasing temperature, and the volatile products are passed through a dust extractor to a condenser. The hot coke may be used for heating a steam generator.

273,776. ALDOL AND CROTON ALDEHYDE FROM ACETALDEHYDE, MANUFACTURE OF. O. Silberrad, The Silberrad Research Laboratories, Buckhurst Hill, Essex. Application date, November 15, 1926.

In the manufacture of aldol from acetaldehyde with the aid of a catalyst, it has been found that the absence of water may cause loss due to resinification, while the presence of water may cause difficulty in the isolation of the aldol. It is now found that the condensation proceeds regularly and smoothly, and the temperature is readily controlled if the aldehyde is added to a sludge of barium hydrate in insufficient water to dissolve it. The condensing agent is subsequently neutralised with acetic, oxalic, boric, or other weak acid, and the aldol may then be isolated by distillation in vacuo. Alternatively, the crude neutralised condensation product may be used direct for the manufacture of croton aldehyde by subjecting it to slow distillation.

273,781. CRACKING PETROLEUM OILS AND CARBURETTING WATER GAS. Petroleum Chemical Corporation 30, Broad Street, New York, and E. P. Stevenson, 30, Charles River Road, Cambridge, Mass., U.S.A. Application date, March 24, 1926.

The process is for utilising hydrocarbon oils of the kind used in the gas industry for enriching gas. The oil is vaporised and the vapour cracked in a tubular retort at such conditions of temperature and rate of flow that progressive exothermic reaction is avoided. The gases are then passed through a condenser in which a crude motor spirit is obtained, and the residual gas is subjected to refrigeration to condense gaseous unsaturated hydrocarbons. The residual gas is then used for enriching water gas. A full description of the plant is given.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention :—249,147 (I.G. Farbenindustrie Akt.-Ges.), relating to halogen-dibenzpyrene-quinones, see Vol. XIV, p. 527; 250,521 (Soc. of Chemical Industry in Basle), relating to vat dyestuff preparations, see Vol. XIV, p. 578; 250,577 (Deutsche Gold- und Silber-Scheideanstalt vorm. Roessler), relating to heterocyclical arsenic compounds, see Vol. XIV, p. 579; 255,905 (I.G. Farbenindustrie Akt.-Ges.), relating to purification of hydrocarbons, see Vol. XV, p. 356; 256,243 (I.G. Farbenindustrie Akt.-Ges.), relating to 3 : 4-benziminazolone-arsinic acids, see Vol. XV, p. 356; 262,408 (Rhenania Kunheim Verein Chemische Fabriken Akt.-Ges.), relating to production of solid ammonium carbonate from its components, see Vol. XVI, p. 167; 263,877 (I.G. Farbenindustrie Akt.-Ges.), relating to catalytic dehydrogenation, see Vol. XVI, p. 264; 266,729 (F. M. Wiberg), relating to reduction of carbon dioxide to monoxide, see Vol. XVI, p. 486.

International Specifications not yet Accepted

272,155. FORMALDEHYDE. Soc. Chimique de la Grande-Paroisse, Azote et Produits Chimiques, 40, Rue du Colisée, Paris. International Convention date, June 3, 1926.

Formaldehyde is obtained by reaction between carbon monoxide, and water or steam at a temperature of 200°–600° C. in the presence of metals of the magnesium and zinc sub-groups, manganese, tin, antimony, or their oxides or salts such as formates, or salts such as magnesium antimonate. The reaction chamber is made of or lined with inert metals such as aluminium or tinned copper. In an example, carbon monoxide and water are forced into a chamber containing the catalyst at a temperature of 340° C. and pressure of 450 atmospheres.

272,190 and 272,194. CRACKING OILS, ETC. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, June 1, 1926.

272,190. Carbonaceous material, tar, mineral oil, bitumen, etc., is distributed in a thin layer over a metallic screw or corrugated band and treated with an excess of hydrogen at a pressure of 200 atmospheres and temperature of 450°–475° C. Molybdic acid may be used as a catalyst, and substances such as magnesia, or diatomaceous earth may be used to increase the surface exposed to hydrogen.

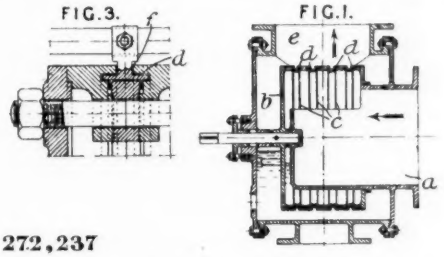
272,194. Pastes of coal, tar, and mineral oils are heated in the presence of metals of the third to eighth groups and their oxides, and the vapours are then superheated and again passed over the catalyst, all in the presence of hydrogen. The material may be passed into the lower part of a vertical retort at 420° C. and hydrogen passed in at 200 atmospheres. The vapours pass into the upper part of the retort at 480° C. The product contains 80 per cent. of benzene.

272,232. PHENYLETHYL-RESORCIN. F. Hoffmann-La Roche and Co., Akt.-Ges., 184, Grenzacherstrasse, Basle, Switzerland. International Convention date, June 4, 1926.

Phenylethyl-resorcin is treated with carbon dioxide in presence of alkali such as sodium bicarbonate to obtain phenylethyl-resorcin-carboxylic acid. The acid is separated from the solution by means of mineral acid.

272,237. TAR SEPARATORS. Compagnie pour la Fabrication des Compteurs et Matériel d'Usines à Gaz, 12, Place des Etats Unis, Montrouge, Seine, France. International Convention date, June 4, 1926.

A chamber *b* is composed of rings which form circular slits *c* in front of rings *d* which constitute impact surfaces. The



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edges of the slits are cleaned by movable scrapers *f*. Gases enter at *a* and pass outward through the slits to the outlet *e*. The scrapers *f* may be fixed to an outer chamber, and the chamber *b* rotated to clean the edges of the slits.

272,469. ANTHRAQUINONE DERIVATIVES. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, June 8, 1926.

1 : 4-Diamino-2-methoxy-anthraquinone is obtained by nitrating 1-amino-2-methoxyanthraquinone in sulphuric acid monohydrate in presence of paraformaldehyde, and reducing the nitro compound with sodium sulphide. Alternatively 1-benzoylamino-2-methoxy-anthraquinone is nitrated in nitrobenzene with nitric acid of 98 per cent. strength, hydrolysed, and reduced. In another alternative, 4-brom-2-methoxy-1-aminoanthraquinone is heated with aqueous ammonia and cupric sulphate.

272,483. CRACKING OILS. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, June 11, 1926.

A horizontal rotary retort for cracking oils is made of nickel-chromium, and contains nickel-chromium balls, so that the heating surfaces are kept in motion and deposition of carbon is avoided. The retort may alternatively be stationary, and the heating effected by an internal rotary frame of molybdenum strips heated electrically. Iron, cobalt, nickel, chromium, etc., may alternatively be used.

272,517. ZINC COMPOUNDS. A. Moulin and E. Berger, 97, Boulevard Malesherbes, Paris. International Convention date, June 11, 1926.

Zinc-containing material is treated with caustic soda to obtain sodium zincate, which is then agitated with air and filtered. The solution is diluted and saturated with carbon dioxide to obtain zinc oxide, and the solution may then be treated for the recovery of soda. The zincate solution may alternatively be treated with hydrogen sulphide to obtain zinc sulphide, or with sodium sulphate and barium sulphide to obtain lithopone.

LATEST NOTIFICATIONS.

275,139. Pressure regulation in coke ovens. Otto and Comp. Ges. Dr. C. July 30, 1926.
275,144. Process of reducing ores. Wittek, Dr. H. July 27, 1926.
275,145. Process of extracting metalloids from their compounds by reduction. Wittek, Dr. H. July 27, 1926.
275,147. Manufacture of dyestuffs. Fabrique de Produits Chemiques Rohner Soc. Anon. Pratteln. August 2, 1926.
275,153. Liquid measuring and distributing apparatus. Soc. Hardoll (Etablissements Hariveau et Dolimier et René Porte et Cie Réunis. July 27, 1926.
275,158. Process for the recovery of concentrated acetic acid and other products originating in the carbonisation of wood. Suida, Dr. H. July 31, 1926.
275,174. Method of and apparatus for drying industrial products. Soc. Industrielle de Briqueterie et Céramique. July 30, 1926.
275,178. Distillation process. Piron, E. July 27, 1926.
275,183. Process for increasing the efficiency of preparations of animal organs. Eichelbaum, Dr. G., and Altenburg, Dr. J. July 28, 1926.
275,194. Process of vulcanising rubber to leather. Conant, L. B. July 29, 1926.
275,196. Apparatus for electric welding. British Thomson-Houston Co., Ltd. August 2, 1926.
275,197. Electric arc welding. British Thomson-Houston Co., Ltd. August 2, 1926.
275,203. Adsorbing agent. Rosenheim, A. July 30, 1926.
275,206. Reversing apparatus for gas, air, and waste-gas valves of gas-fired furnaces, for example, regeneratively heated coke-chamber ovens, also furnaces for metallurgical and other industrial purposes. Kellner and Flothmann Ges. July 31, 1926.
275,213. Process for the manufacture of iodine-substituted benzonitriles with a linkage of the phenol ether type. Chemische Fabrik auf Actien (vorm. E. Schering). August 2, 1926.
275,214. Devices for protecting the exhausting socket of vacuum glass vessels containing mercury. Jenaer Glaswerk Schott und Gen. August 2, 1926.
275,219. Resinous compositions and process of making the same. British Thomson-Houston Co., Ltd. August 2, 1926.
275,220. Manufacture of azo dyestuffs. Geigy Akt.-Ges. July 29, 1926.
275,221. Process for the production by electrolysis of thin superposed nickel sheets, and for separating them one from another. Breuning, E., and Schneider, O. July 27, 1926.
275,223. Electrical depositing of chromium. Siemens und Halske-Akt.-Ges. July 27, 1926.
275,227. Scavenging the residues of combustion in internal-combustion engines operated by pulverulent fuel. I. G. Farbenindustrie Akt.-Ges. July 27, 1926.
275,228. Manufacture and production of explosives. Guthke, F. W. July 28, 1926.
275,230. Process of producing yellow dyeings on cellulose esters or cellulose ethers. I. G. Farbenindustrie Akt.-Ges. July 29, 1926.
275,233. Metallic coatings. General Electric Co., Ltd., and Weintraub, E. July 27, 1926.
275,234. Manufacture of rust-preventing oil paints. Rostschutz-Farbwerke Dr. Liebreich Ges. July 27, 1926.
275,239. Drying apparatus. Maschinenfabrik Grevenbroich. July 27, 1926.
275,245. Manufacture of stable diazo-salt preparations. I. G. Farbenindustrie Akt.-Ges. August 2, 1926.
275,248. Supplying heat in high-pressure reactions. I. G. Farbenindustrie Akt.-Ges. July 28, 1926.
275,258. Manufacture of azo dyestuffs. I. G. Farbenindustrie Akt.-Ges. July 29, 1926.
275,267. Method of producing and employing purifying, emulsifying, and wetting agents. Chemische Fabrik Milch Akt.-Ges. August 2, 1926.
275,271. Manufacture of amidated sulphurised benzanthrone derivatives. I. G. Farbenindustrie Akt.-Ges. August 2, 1926.
275,273. Method of producing hydrogen. Gülker, F. July 30, 1926.

Specifications Accepted with Date of Application

251,270. Cyclic hydrocarbons and derivatives thereof, Manufacture of. I. G. Farbenindustrie Akt.-Ges. April 24, 1925.
253,094. Condensation products from urea or a derivative thereof and formaldehyde. Soc. of Chemical Industry in Basle. June 5, 1925.
253,550. Titanium oxide, Process for the manufacture of. J. Blumenfeld. June 11, 1925.
254,726. Active silicic acid, Process of producing. Ring Ges. Chemischer Unternehmungen. July 1, 1925.
255,072. Azo dyestuffs, Manufacture of. I. G. Farbenindustrie Akt.-Ges. July 7, 1925.
258,901. Borneol and isoborneol, Process for manufacturing. G. Austerweil. September 25, 1925.
260,620. Vulcanised rubber, Process and apparatus for regenerating. Soc. Italiana Pirelli. October 31, 1925.
261,395. Concentration of ores or other material by flotation, Apparatus for. F. P. Egeberg. November 13, 1925.
263,879. Dyestuffs of the triaryl-methane series, Manufacture of. I. G. Farbenindustrie Akt.-Ges. January 2, 1926.
265,984. Benzenes from coal gas, Recovery of. Naamlooze Vennootschap Silica en Ovenbouw Mij. February 12, 1926.
268,375. Alkylated or cyclo-alkylated aryl-sulphonic acids. Manufacture of. I. G. Farbenindustrie Akt.-Ges. March 27, 1926. Addition to 250,241.
269,583. Aromatic para-diamines with sulphur dioxide, Manufacture of compounds of. I. G. Farbenindustrie Akt.-Ges. April 17, 1926.
272,173. Drying agent for gases and application of same. I. G. Farbenindustrie Akt.-Ges. June 7, 1926.
273,660. Pure lead carbonate from crude lead sulphate, Manufacture of. R. Daloze. July 3, 1926.
274,527. Vat dyestuffs of the 2-thionaphthene-2-indolindigo series, Manufacture of. W. Carpmael. (*I. G. Farbenindustrie Akt.-Ges.*) February 17, 1926.
274,538. Active carbon, Production of. K. S. C. Bone and Wilson Bros. Bobbin Co., Ltd. March 19, 1926.
274,558. Derivatives of the anthraquinone series, Manufacture of. W. Carpmael. (*I. G. Farbenindustrie Akt.-Ges.*) April 21, 1926.
274,573. Dissociation of carbonaceous gases or vapours. H. E. Potts. (*Canada Carbide Co., Ltd.*) April 24, 1926.
274,562. Aromatic nitro compounds, Reduction of. W. Carpmael. (*I. G. Farbenindustrie Akt.-Ges.*) April 21, 1926.
274,581. Synthetic resins of the phenol aldehyde type. A. A. Drummond. April 26, 1926.
274,610. Carbon monoxide and hydrogen from hydrocarbons, Preparation of mixtures of. L. Casale. June 2, 1926.
274,623. Titrations and like operations, Apparatus for use in performing. J. F. Marshall. June 17, 1926.
274,627. Colour lakes, Manufacture and production of. J. Y. Johnson. (*I. G. Farbenindustrie Akt.-Ges.*) June 28, 1926.
274,700. Chloranil and bromanil, Manufacture of. L. B. Holliday and Co., Ltd., and C. Shaw. November 26, 1926.
274,703. Cracking hydrocarbons, Process for. C. Arnold. (*Standard Development Co.*) March 14, 1927.

Applications for Patents

Adams, H., British Dyestuffs Corporation, Ltd., and Shepherdson, A. Manufacture of products from lignin sulphonic acid. 20,490. August 3.
Anderson, L. J., Cash, W. A., and Stephens, F. G. C. Manufacture of titanium oxide. 20,422. August 2.
Ault and Wiborg Co. Treating hydrocarbons. 20,517. August 3. (United States, February 28.)
Bemberg Akt.-Ges., J. P. Production of artificial silk. 20,602. August 4. (Germany, August 5, 1926.)
Bockweg, H. H. Cleansing composition. 20,420. August 2. (Holland, December 8, 1926.)
Carpmael, A., and I. G. Farbenindustrie Akt.-Ges. Manufacture of sulphur dyestuffs. 20,610. August 4.
Carpmael, K., Carpmael, K. S. [Legal representatives of Carpmael, W.], and I. G. Farbenindustrie Akt.-Ges. Manufacture of vat dyestuffs of anthraquinone series. 20,415. August 2. (May 12, 1926.)
Chemische Fabrik auf Actien vorm. E. Schering. Process for obtaining germ gland hormones. 20,727. August 5. (Germany, September 11, 1926.)
Chemische Fabrik Milch Akt.-Ges. Production of emulsifying and wetting agents. 20,358. August 2. (Germany, August 2, 1926.)
Coley, H. E. Manufacture of zinc. 20,348. August 2.
Coley, H. E. Apparatus for reduction of ores, etc. 20,512. August 3.
Cox, F. M. Centrifugal separators. 20,484. August 3.
Drying Systems, Inc. Drying ovens. 20,703. August 5. (United States, August 5, 1926.)
Elöd, E. Production of cellulose esters. 20,617. August 4. (Germany, August 9, 1926.)
Flesch, H. Production of sulphuric esters of poly-oxy fatty acids. 20,571. August 4. (Germany, March 14.)
Flesch, H. Application of highly sulphonated oils in the textile industry. 20,572. August 4. (Germany, January 20.)
Flesch, H. Production of sulphonated oils, etc. 20,573. August 4. (Germany, December 23, 1926.)
Flesch, H. Process for employment of sulphonated oils in tanning. 20,574. August 4. (Germany, December 27, 1926.)
Gabbott, E. P., Walker and Homfrays, Ltd. Apparatus for delivering measured quantities of liquids. 20,643. August 5.
Gareau, N. J. Production of alumina, soda, and hydrochloric acid. 20,522. August 3.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £34 per ton; powder, £36 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° TW.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 5d. to 2s. 10d. per gall.; pyridinised industrial, 2s. 7d. to 3s. per gall.; mineralised, 3s. 6d. to 3s. 10d. per gall.; 64 O.P., 1d. extra in all cases; prices according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3⅞d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton for home market, 1-cwt. drums included.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—8d. to 9d. per lb. Crude 60's, 2s. 6d. to 2s. 8d. per gall.

ACID CRESYLIC 99/100.—2s. 9d. to 2s. 10d. per gall. 97/99.—2s. 1½d. to 2s. 3d. per gall. Pale, 95%, 2s. to 2s. 1½d. per gall. Dark, 1s. 9d. to 1s. 10d. per gall.

ANTHRACENE.—A quality, 2½d. to 3d. per unit. 40%, 3d. per unit.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.; both according to gravity.

BENZOLE.—Crude 65's, 10d. to 10½d. per gall., ex works in tank wagons. Standard Motor, 1s. 3d. to 1s. 3½d. per gall., ex works in tank wagons. Pure, 1s. 6d. to 1s. 7d. per gall., ex works in tank wagons.

TOLUOLE.—90%, 1s. 4d. to 1s. 9d. per gall. Firm. Pure, 1s. 7d. to 2s. per gall.

XYLOL.—1s. 3d. to 1s. 10d. per gall. Pure, 2s. 5d. per gall.

CREOSOTE.—Cresylic, 20/24%, 10d. to 11d. per gall. Standard specification, 7⅜d. to 7½d.; middle oil, 9d. to 10d. per gall. Heavy, 8½d. to 8⅝d. per gall. Salty, 7d. per gall. less 1¼%.

NAPHTHA.—Crude, 7½d. to 8d. per gall. according to quality. Solvent 90/160, 1s. 2d. to 1s. 4d. per gall. Solvent 95/160, 1s. 4d. to 1s. 5d. per gall. Solvent 90/190, 1s. to 1s. 4d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £7 10s. per ton. Whizzed or hot pressed, £8 10s. to £9 per ton.

NAPHTHALENE.—Crystals, £11 10s. to £13 10s. per ton. Quiet. Flaked, £12 10s. to £13 per ton, according to districts.

PITCH.—Medium soft, 88s. 9d. to 92s. 6d. per ton, f.o.b., according to district; nominal.

PYRIDINE.—90/140, 5s. 9d. to 7s. per gall. 90/180, 4s. 6d. to 5s. per gall. Heavy, 4s. to 4s. 6d. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—4s. 9d. per lb.

ACID H.—3s. 3d. per lb. 100% basis d/d.

ACID NAPHTHIONIC.—1s. 6d. per lb. 100% basis d/d.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100% basis d/d.

ACID SULPHANILIC.—9d. per lb. 100% basis d/d.

ANILINE OIL.—7½d. per lb. naked at works.

ANILINE SALTS.—7½d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—4½d. per lb. Fair inquiry.

m-CRESOL 98/100%.—2s. 7½d. per lb. Only limited inquiry.

p-CRESOL 32/34° C.—2s. 8½d. per lb. Only limited inquiry.

DICHLORANILINE.—2s. 3d. per lb.

DIMETHYLANILINE.—1s. 11d. per lb. d/d. Drums extra.

DINITROBENZENE.—9d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—11d. to 1s. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb. d/d.

B-NAPHTHYLAMINE.—3s. per lb. d/d.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 8d. per lb. d/d.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb. d/d.

R. SALT.—2s. 2d. per lb. 100% basis d/d.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—7½d. per lb. naked at works.

p-TOLUIDINE.—2s. 2d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

N. W. Acid.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 to £9 5s. per ton. Grey, £15 per ton. Liquor, 9d. per gall. 32° Tw.

CHARCOAL.—£6 to £9 per ton, according to grade and locality.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 10d. per gall. 16° Tw.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—4s. to 4s. 1d. per gall., 60% O.P. Solvent, 4s. 3d. per gall., 40% O.P.

WOOD TAR.—£4 10s. to £5 per ton and upwards, according to grade.

BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5¾d. to 6¾d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.

ZINC SULPHIDE.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 5d. to 2s. 6d. per lb.

ACID, BENZOIC B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. to 1s. 3d. per oz., according to quantity.

ACID, BORIC B.P.—5 cwt. lots Crystal, 41s. per cwt.; powder, 45s. per cwt. Carriage paid any station in Great Britain, in ton lots.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 7¾d. to 1s. 8d. per lb., less 5%.
ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.
ACID, SALICYLIC, B.P.—1s. 2½d. to 1s. 3½d. per lb.; Technical.—11½d. to 1s. per lb.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—1s. 3¾d. per lb., less 5%. Firm market.
AMIDOL.—9s. per lb., d/d.
ACETANILIDE.—1s. 6d. to 1s. 8d. per lb. for quantities.
AMIDOPYRIN.—8s 6d. per lb.
AMMONIUM BENZOATE.—3s. 3d. to 3s. 9d. per lb., according to quantity.
AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated: 1s. per lb.
ATROPINE SULPHATE.—11s. per oz. for English make.
BARBITONE.—6s. per lb.
BENZONAPHTHOL.—3s. 3d. per lb. spot.
BISMUTH CARBONATE.—9s. 9d. to 10s. per lb.
BISMUTH CITRATE.—9s. 6d. to 9s. 9d. per lb.
BISMUTH SALICYLATE.—8s. 9d. to 9s. per lb.
BISMUTH SUBNITRATE.—7s. 9d. to 8s. per lb.
BISMUTH NITRATE.—5s. 9d. to 6s. per lb.
BISMUTH OXIDE.—13s. 9d. to 14s. per lb.
BISMUTH SUBCHLORIDE.—11s. 9d. to 12s. per lb.
BISMUTH SUBGALLATE.—7s. 9d. to 8s. per lb. Extra and reduced prices for smaller and larger quantities respectively; Liquor Bismuthi B.P. in W. Qts. 1s. 1d. per lb.; 12 W. Qts. 1s. per lb.; 36 W. Qts. 11½d. per lb.
BORAX B.P.—5 cwt. lots, Crystal, 25s. per cwt.; powder, 27s. per cwt. according to quantity. Carriage paid any station in Great Britain, in ton lots.
BROMIDES.—Potassium, 1s. 11d. per lb.; sodium, 2s. 4d. per lb.; ammonium, 2s. 4d. per lb.; granulated ½d. per lb. less; all spot.
CALCIUM LACTATE.—1s. 2½d. to 1s. 3½d. per lb.
CAMPHOR.—Refined flowers, 2s. 11d. to 3s. 1d. per lb., according to quantity; also special contract prices.
CHLORAL HYDRATE.—3s. 6d. per lb., duty paid.
CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
ETHERS.—Prices for Winchester quarts; dozen Winchester quarts; carboys or drums; and 10 cwt. lots respectively: ·730—1s. 2½d.; 1s. 2d.; 1s. 1½d.; 1s. 0½d.; ·720 technical—1s. 5½d.; 1s. 5d.; 1s. 4½d.; 1s. 3½d.; ·720 pur. (Aether B.P., 1914)—2s. 4d.; 2s. 3½d.; 2s. 3d.; 2s. 2d.
FORMALDEHYDE.—£39 per ton, in barrels ex wharf.
GUAIACOL CARBONATE.—5s. per lb.
HEXAMINE.—2s. 4d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. B.P., 1 lb., 16s. per doz.; ½ lb., 9s. 6d. per doz.; ¼ lb., 6s. 6d. per doz.
HYDROQUINONE.—2s. 11d. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
IRON AMMONIUM CITRATE B.P.—2s. 1d. to 2s. 4d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.
IRON PERCHLORIDE.—4d. per lb., 20s. to 22s. per cwt.
MAGNESIUM CARBONATE.—Light Commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy Commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.
MENTHOL.—A.B.R. recrystallised B.P., 18s. 6d. per lb. net; Synthetic detached crystals, 10s. 6d. to 14s. 6d. per lb., according to quantity; Liquid (95%), 12s. per lb.
MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10d. to 5s. 11d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 9d. per lb.
METHYL SULPHONAL.—9s. 6d. to 9s. 9d. per lb.
METOL.—11s. per lb. British make.
PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.
PARALDEHYDE.—1s. 4d. per lb.
PHENACETIN.—2s. 9d. to 3s. per lb.
PHENAZONE.—4s. 3d. to 4s. 6d. per lb.
PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—100s. per cwt. less 2½% for ton lots.
POTASSIUM CITRATE.—B.P.C., 1911; 1s. 8d. to 1s. 11d. per lb.; U.S.P.; 1s. 11d. to 2s. 2d. per lb.
POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.
POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb.
POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 6d. per lb., spot.
QUININE SULPHATE.—2s. per oz., 1s. 8d. to 1s. 9d. for 1000 oz. lots in 100 oz. tins.
RESORCIN.—3s. 9d. to 4s. per lb., spot.
SACCHARIN.—55s. per lb.; in quantity lower.
SALOL.—2s. 4d. per lb.
SODIUM BENZOATE, B.P.—1s. 10d. to 2s. 2d. per lb.
SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb., B.P.C., 1923—2s. 1d. per lb. for 1 cwt. lots. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.
SODIUM FERROCYANIDE.—4d. per lb., carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—90s. to 95s. per cwt. Crystals, 5s. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 1s. 11d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.
SODIUM SULPHITE, ANHYDROUS, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.
SULPHONAL.—6s. 6d. to 6s. 9d. per lb.
TARTAR EMETIC, B.P.—Crystal or powder, 2s. to 2s. 2d. per lb.
THYMOL.—Puriss., 10s. 6d. to 11s. 6d. per lb., according to quantity. Firmer. Natural, 15s. per lb.

Perfumery Chemicals

ACETOPHENONE.—6s. 6d. per lb.
AUBEPINE (EX ANETHOL), 10s. 6d. per lb.
AMYL ACETATE.—2s. per lb.
AMYL BUTYRATE.—5s. 3d. per lb.
AMYL SALICYLATE.—3s. per lb.
ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb
BENZYL BENZOATE.—2s. 6d. per lb.
CINNAMIC ALDEHYDE NATURAL.—17s. per lb.
COUMARIN.—10s. per lb.
CITRONELLOL.—13s. 9d. per lb.
CITRAL.—8s. 6d. per lb.
ETHYL CINNAMATE.—6s. 6d. per lb.
ETHYL PHTHALATE.—2s. 9d. per lb.
EUGENOL.—8s. 6d. per lb.
GERANIOL (PALMAROSA).—18s. 6d. per lb.
GERANIOL.—6s. 6d. to 10s. per lb.
HELIOTROPINE.—4s. 9d. per lb.
ISO EUGENOL.—13s. 6d. per lb.
LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.
LINALYL ACETATE.—Ex Bois de Rose, 18s. 6d. per lb. Ex Shui Oil, 14s. 6d. per lb.
METHYL ANTHRANILATE.—8s. 6d. per lb.
METHYL BENZOATE.—4s. per lb.
MUSK KETONE.—35s. per lb.
MUSK XYLOL.—8s. 6d. per lb.
NEROLIN.—4s. 6d. per lb.
PHENYL ETHYL ACETATE.—12s. per lb.
PHENYL ETHYL ALCOHOL.—10s. 6d. per lb.
RHODINOL.—32s. 6d. per lb.
SAFROL.—1s. 6d. per lb.
TERPINEOL.—1s. 8d. per lb.
VANILLIN.—18s. per lb.

Essential

ALMOND OIL.—11s. per lb.
ANISE OIL.—3s. per lb.
BERGAMOT OIL.—28s. per lb.
BOURBON GERANIUM OIL.—14s. 6d. per lb.
CAMPHOR OIL.—70s. per cwt.
CANANGA OIL, JAVA.—26s. per lb.
CINNAMON OIL LEAF.—6d. per oz.
CASSIA OIL, 80/85%.—7s. 6d. per lb.
CITRONELLA OIL.—Java, 85/90%, 1s. 11d. per lb. Ceylon, pure, 1s. 9d. per lb.
CLOVE OIL.—6s. per lb.
EUCALYPTUS OIL, 75/80 %.—2s. 3d. per lb.
LAVENDER OIL.—Mont Blanc, 38/40%, Esters, 22s. 6d. per lb.
LEMON OIL.—8s. per lb.
LEMONGRASS OIL.—4s. 6d. per lb.
ORANGE OIL, SWEET.—10s. 6d. per lb.
OTTO OF ROSE OIL.—Anatolian, 30s. per oz. Bulgarian, 70s. per oz.
PALMA ROSA OIL.—10s. 6d. per lb.
PEPPERMINT OIL.—Wayne County, 17s. per lb. Japanese, 8s. per lb.
PETITGRAIN OIL.—7s. 9d. per lb.
SANDALWOOD OIL.—Mysore, 26s. 6d. per lb.; 90/95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, August 11, 1927.

A NOTICEABLE increase in the demand for the bulk of chemical products can be reported this week, and prices continue steady. Export trade is without special feature.

General Chemicals

ACETONE continues in fair request and price is unchanged at about £62 per ton, with slight reductions for large quantities and contracts.

ACID ACETIC in steady call with price unchanged and firm at £37 to £38 for 80%.

ACID FORMIC is in better request and price unchanged at £46 10s. to £47 for 85% technical.

ACID LACTIC is in good request especially for first grade pale quality. Price firm at £42 for 50% by weight.

ACID OXALIC.—Steady business passing at advanced prices and market firm.

ALUMINA SULPHATE.—Good business offering and price for spot and near delivery firm at about £5 10s. for 17/18%, forward prices inclined to harden.

ARSENIC.—A larger demand is being felt especially for export and prices are inclined to advance slightly. Home demand still quiet.

BARIUM CHLORIDE.—Slightly lower quotations are being made and the demand is disappointing. Spot price about £8 10s. per ton.

COPPER SULPHATE.—Considering the time of the year the demand is satisfactory and price holds firm at £23 to £23 5s. for first class brands.

EPSOM SALTS are still in large request especially on export account and price firm.

FORMALDEHYDE.—Demand continues to improve and price steady at about £40.

LEAD ACETATE is in good request; white, firm at £43 and brown at £42 per ton.

LEAD NITRATE is firm at £38 to £39 per ton.

LIME ACETATE is active, especially for export.

METHYL ACETONE is in good demand and price very firm at £60 to £62.

POTASSIUM CHLORATE.—Slightly lower offers are being made and demand is not so brisk.

POTASSIUM PERMANGANATE is in fair demand and the price is firmly held at about 7¼d. per lb.

POTASSIUM PRUSSIATE.—Demand is still on the small side, but price is now steady at £60 to £65 according to quantity.

SODA ACETATE.—Good business reported in this product and price firm. For forward delivery price is inclined to stiffen, spot supplies offering about £18 15s. to £19 per ton.

SODA BICHROMATE is unchanged and in steady demand.

SODA CHLORATE.—The demand is improving and price holds steady at £28 per ton.

SODA HYPOSULPHITE.—The demand for commercial grade is poor and price unchanged at British makers' figures. Photographic pea crystals in good request.

SODA NITRITE is in steady demand and price unchanged at about £19 10s. to £20 10s. per ton.

SODA PHOSPHATE.—Quite a substantial business being done and price very firm at about £12 10s.

SODA PRUSSIATE is unchanged in price at about 4½d., demand only fair.

SODA SULPHIDE.—Very little business being done with foreign material competing.

ZINC SULPHATE is in moderate demand at unchanged price of about £13 10s.

Coal Tar Products

The market values of coal tar products continue to be firm.

90's BENZOL is unchanged, at 1s. 5d. to 1s. 6d. per gallon on rails, and the motor quality is quoted at 1s. 2d. to 1s. 3d. per gallon, on rails.

PURE BENZOL is quoted at 1s. 8d. to 1s. 9d. per gallon, on rails.

CREOSOTE OIL is unchanged, the price in the North being 7½d. per gallon, on rails, while the price in London is 8¼d. to 8½d. per gallon.

CRESYLIC ACID shows signs of being an easier market, and can be bought at 2s. 3d. to 2s. 4d. per gallon, ex works, for the 97/99% pale quality, while the dark, 95/97% quality is quoted at 2s. per gallon. on rails.

SOLVENT NAPHTHA is weak, and is quoted at 10d. to 10½d. per gallon on rails.

HEAVY NAPHTHA is unchanged at 11d. per gallon, on rails.

NAPHTHALENES are unchanged, the 74/76 quality being worth about £6 15s. per ton, while the 76/78 quality is quoted at £8 to £8 10s. per ton.

PITCH is unchanged, prices remain more or less nominal at 80s. to 85s. per ton, f.o.b. U.K. ports.

Latest Oil Prices

LONDON, August 10.—LINSEED OIL was quiet at 2s. 6d. to 5s. decline. Spot, £32; August, £31 7s. 6d.; September-December, £31 12s. 6d.; January-April, £32 2s. 6d. RAPE OIL was slow. Crude extracted, £42, naked, ex wharf; technical refined, £44 10s.; crude Japanese, £40 (drums). COTTON OIL was steadier. Refined edible, £40; Bombay crude, £33 10s.; Egyptian crude, £34 10s.; deodorised, £42. TURPENTINE was unchanged. Spot, 42s. 6d.; and September-December, 43s. 9d. per cwt.

HULL.—LINSEED OIL.—Spot to December, £32; January-April, £32 2s. 6d. per ton, naked. COTTON OIL.—Egyptian crude, £35; edible refined, £38 15s.; technical, £37 15s.; deodorised, £40 15s. per ton, naked. PALM KERNEL OIL.—Crushed, 5½ per cent., £37 per ton, naked. GROUNDNUT OIL.—Crushed-extracted, £42; deodorised, £46. SOYA OIL.—Extracted and crushed, £33; deodorised, £36 10s. RAPE OIL.—Crude-extracted, £42; refined, £44 per ton, net cash terms, ex mill.

Nitrogen Products

Export.—During the last week the demand for sulphate of ammonia has been on an extensive scale, and the market has remained firm at £9 3s. 6d./£9 5s. 6d. per ton., f.o.b. U.K. ports in single bags.

Home.—The reduced home prices have stimulated the demand, and it is reported that merchants in several districts have made large purchases, mostly for forward delivery.

Nitrate of Soda.—The nitrate market continues quiet. Prices remain unchanged at 16s. 3d. to 16s. 7d. per metric quintal, f.a.s. Chile.

British Instrument Makers

MR. MALCOLM DUNBAR, director of L. Oertling, Ltd., Turnmill Street, London, writes: "It is generally admitted that there are few finer craftsmen than the London instrument maker. As employers, therefore, we regret to find a continental origin ascribed to any of his products. Since 1849, when the late Mr. L. Oertling settled in London and commenced business as a builder of precision balances, instruments have borne the mark 'L. Oertling—London,' which has, in fact, become known throughout the world as denoting the highest grade of workmanship in this very specialised field. It is easily understood that the name might suggest to some a foreign origin; but the truth is that this has never been a foreign firm with a London address, or a firm importing foreign balances or parts for erection here. Every 'Oertling' balance has been built throughout in London; and, since we find misapprehensions on this point, we wish to stress that our output is entirely British—the product of British brains, British craftsmen, and British capital."

Regulations Regarding Condensed "Skimmed" Milk

SHORTLY before the House of Commons adjourned, the Unionist Parliamentary Agricultural Committee appointed a deputation to confer with the Minister of Health regarding the labelling of condensed milk. It was urged that the labels were not sufficiently distinctive, more particularly in the case of condensed "skimmed" milk. After considering the representations, the Minister of Health has decided to issue draft regulations to local authorities on the subject. They are to apply to both condensed "whole" milk and condensed "skimmed" milk, and will come into operation on April 1, 1928, so far as they amend Part 3 of the existing regulations relating to importation, and in other respects on July 1, 1928. Moreover, it is provided in them that no person shall offer for sale for human consumption any condensed "skimmed milk" in a tin or other receptacle enclosed in a paper or other wrapper unless the words "unfit for babies" are printed not only on the label, but also on the outside of the wrapper in type of not less than ¼ in. in height.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, August 10, 1927.

DURING the past week business in the heavy chemical market has shown a little improvement, particularly in the number of inquiries for export, notwithstanding that prices show little or no change.

Industrial Chemicals

ACID ACETIC.—98/100%, £65 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80%, pure, £37 10s. per ton, ex wharf; 80%, technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystal, granulated or small flakes, £34 per ton. powder, £36 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC ICE CRYSTALS.—In moderate demand, and price unchanged at 8d. per lb., f.o.b. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—Quoted 1s. 7d. per lb., less 5%, ex store for English material. Continental on offer at 1s. 8d. per lb., less 5%, c.i.f. U.K. ports.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. 9d. per carboy. Dearsenicated quality 6s. 3d. per carboy, ex works.

ACID NITRIC, 80%.—Quoted £23 5s. per ton, ex station, full truck loads.

ACID OXALIC.—Still in good demand, and price unchanged at 3d. per lb., ex store. Spot delivery. Offered from the Continent at 2⅞d.

ACID SULPHURIC, 144°.—£3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—In moderate demand, and price unchanged at 1s. 4d. per lb., ex wharf.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Spot material quoted £5 12s. 6d. per ton, ex store. On offer for early delivery at £5 5s. per ton, c.i.f. U.K. ports.

ALUM POTASH.—Lump quality on offer from the Continent, £8 5s. per ton, c.i.f. U.K. ports; powdered, 2s. 6d. per ton less. Lump on spot on offer at £9 2s. 6d. per ton, ex store.

AMMONIA ANHYDROUS.—Unchanged at about 9d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered, or f.o.b. U.K. ports.

AMMONIA LIQUID, 880.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of English manufacture quoted £23 to £24 per ton, ex station. Continental on offer £19 15s. per ton, c.i.f. U.K. ports. Fine white crystals of continental manufacture quoted £18 per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—In good demand, and price about £19 per ton, ex wharf. Prompt despatch from mines. Spot material available at £19 10s. per ton, ex store.

BARIUM CARBONATE, 98/100%.—White powdered quality quoted £6 15s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals quoted £7 2s. 6d. per ton, c.i.f. U.K. ports.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—Contract price to consumers, £8 per ton, ex station, minimum 4-ton lots. Spot material 10s. per ton extra. Continental on offer at £7 5s. per ton, ex wharf.

BORAX.—Granulated, £19 10s. per ton; crystals, £20 per ton; powder, £21 per ton, carriage paid U.K. ports.

CALCIUM CHLORIDE.—English manufacture, price unchanged at £5 5s. per ton, ex station, with a slight concession for contracts. Continental quoted £3 15s. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works, or £4 12s. 6d. per ton, f.o.b. U.K. ports for export.

COPPER SULPHATE.—Continental material now quoted £23 15s. per ton, ex wharf. British material on offer at £23 10s. per ton, f.o.b. U.K. ports.

FORMALDEHYDE, 40%.—Unchanged at £38 per ton, c.i.f. U.K. ports. Spot material quoted £39 5s. per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material unchanged at £31 15s. per ton, ex store.

LEAD, WHITE.—Quoted £32 5s. per ton, ex store.

LEAD ACETATE.—White crystals offered from the Continent at £42 7s. 6d. per ton, c.i.f. U.K. ports; brown about £40 5s. per ton, c.i.f. U.K. ports; white crystals offered on spot at about £43 15s. per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store. In moderate demand.

POTASH, CAUSTIC, 88/92%.—Solid quality quoted £28 15s. per ton, c.i.f. U.K. ports, minimum 15-ton lots. Under 15-ton lots, £29 10s. per ton. Liquid, £15 per ton, minimum 15-ton lots. Under 15-ton lots, £15 7s. 6d. per ton, c.i.f. U.K. ports.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE, 96/98%.—Quoted £27 5s. per ton, ex wharf, early shipment. Spot material on offer at about £28 10s. per ton, ex store.

POTASSIUM CHLORATE.—Powdered quality on offer at £24 5s. per ton, c.i.f. U.K. ports. Crystals, £2 per ton extra.

POTASSIUM NITRATE.—Refined granulated quality quoted £20 2s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £21 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 6½d. per lb., ex store, spot delivery.

POTASSIUM PRUSSIATE (YELLOW).—Rather quiet and spot material now offered at 6¾d. per lb., ex store, spot delivery. Offered for prompt shipment from the Continent at a fraction less.

SODA, CAUSTIC.—Powder, 98/99%, £19 7s. 6d. per ton; 76/77%, £15 10s. per ton, and 70/72%, £14 10s. per ton, carriage paid station. Minimum, 4-ton lots on contract. Spot material 10s. per ton extra.

SODIUM ACETATE.—English material quoted £21 10s. per ton, ex store. Continental on offer at £17 15s. per ton, c.i.f. U.K. ports.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3¾d. per lb., delivered buyers' works.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powdered or pea quality, £1 7s. 6d. per ton; alkali 58%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 10s. per ton, ex store. Minimum 4-ton lots. Continental on offer at about £8 2s. 6d. per ton, ex wharf, prompt shipment. Pea crystals of British manufacture quoted £15 5s. per ton, ex station, 4-ton lots.

SODIUM NITRITE, 100%.—Quoted £19 15s. per ton, ex store.

SODIUM PRUSSIATE (YELLOW).—In moderate demand and price unchanged at about 4½d. per lb., ex store. Offered for prompt shipment from the Continent at 4⅜d. per lb., ex wharf.

SODIUM SULPHATE (SALTCAKE).—Price for home consumption, £3 7s. 6d. per ton, ex works.

SODIUM SULPHIDE.—Prices for English material as follows:—60/62% solid, now £10 10s. per ton; broken, £11 10s. per ton; flake, £13 5s. per ton; crystals, 31/34%, £7 10s. per ton to £8 5s. per ton, according to quality, delivered your works, minimum 4-ton lots on contract. Prices for spot delivery, 5s. per ton higher for solid, 2s. 6d. per ton for crystals. Offered from the Continent at about £9 5s. per ton, c.i.f. U.K. ports; broken, 15s. per ton extra.

SULPHUR.—Flowers, £12 10s. per ton; roll, £11 per ton; rock, £11 per ton; floristella, £10 per ton; ground American, £9 5s. per ton, ex store, prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100% solid, on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports. Powdered, 20s. per ton extra.

ZINC SULPHATE.—Continental material now quoted £11 5s. per ton, ex wharf.

NOTE.—The above prcies are for bulk business, and are not to be taken as applicable to small parcels.

Intermediates

PARA-NITRANILINE.—1s. 8d. per lb. Some inquiries.
DIMETHYLANILINE.—1s. 1d. per lb. Some inquiries.
α-NAPHTHYLAMINE.—1s. 3d. per lb. Some inquiries.
ORTHO-TOLUIDINE.—8d. per lb. Fair inquiries.

Liquid Preserved from the Pyramid Age

FURTHER information is now available relating to the remarkable find of a liquid in the canopic jar of Queen Hetepheres, mother of Khufu, which unquestionably has been preserved since the Pyramid age. An analysis has been made by Mr. Lucas, chemist to the Egyptian Antiquities Department. It appears that the liquid is a 3 per cent. solution of natron, of which the water has been stained yellow by the organic contents of the canopic jar. It is suggested that the water has been preserved owing to the fact that it was enclosed in an alabaster box with a tight-fitting lid and buried in a chamber cut from the living rock at a depth of 100 ft. and in a niche which had been built up with plaster-covered limestone slabs.

Manchester Chemical Market

[From Our Own Correspondent.]

Manchester, August 11, 1927.

The process of recovery after the extreme quietness of the last two weeks is a slow one, and although there has been a shade more activity in some varieties of chemical products on the Manchester market during the past week the demand generally is still on quiet lines, buying both on home consumption account and for shipment being on a restricted scale. On the whole, however, values keep up fairly well and there is little evidence about of real weakness in any particular section of the market.

Heavy Chemicals

For glauber salts inquiry this week has been inactive, but quotations are about held at £3 10s. per ton. Offers of prussiate of soda are on the basis of 4¼d. per lb., with current sales of this material rather slow. A fair amount of business has been done in saltcake and values are maintained at £3 12s. 6d. per ton. The demand for bichromate of soda keeps up to its recent level and quotations are unaltered on the week at about 3d. per lb. A quiet trade is being put through in the case of hyposulphite of soda, with the photographic grade steady at £16 10s. and the commercial at £9 10s. to £9 15s. per ton. Caustic soda keeps firm at from £14 10s. to £16 10s. per ton, a fair demand both for domestic users and for shipment being reported. Alkali also is moving off in moderate quantities, makers' offers still being on the basis of £6 15s. per ton. Current values of nitrite of soda are in the neighbourhood of £19 5s. per ton, but there has not been much business passing in this during the week. Bicarbonate of soda keeps steady and meets with a fair amount of inquiry at £10 10s. per ton. Phosphate of soda is in quiet demand with about £12 10s. now being quoted here. Chlorate of soda is attracting relatively little interest from buyers at the moment and prices are easy at from 2⅞d. to 3d. per lb. For sulphide of sodium inquiry has been slow, but values show little change on the week, 60 to 65 per cent. concentrated solid being quoted at about £11 5s. per ton and commercial material at £8 10s.

Yellow prussiate of potash is in slow demand and values in this section are on the easy side at from 6¾d. to 6¾d. per lb. Carbonate of potash is attracting a fair amount of attention and quotations are held at round £27 per ton. Permanganate of potash keeps steady and a moderate trade is being done at about 6½d. per lb. for the B.P. quality and 5¾d. per lb. for the commercial. Round 3d. per lb. is now being quoted here for chlorate of potash but the demand is on a limited scale. Caustic potash still meets with a quietly steady demand at up to £31 per ton. Current quotations for bichromate of potash range from 4⅛d. to 4¼d. per lb.

Inquiry for sulphate of copper this week has been quieter than of late, with prices at from £25 5s. to £25 10s. per ton, f.o.b. Arsenic continues firm and in somewhat better request at up to £26 15s. per ton at the mines for white powdered, Cornish makes. Nitrate of lead is slow and easy at about £38 per ton. The demand for acetate of lead is also on restricted lines, with brown quality at £40 to £40 10s. per ton and white at £42 10s. Acetate of lime is well held, although there is not a great deal of business passing in this at the moment; brown is on offer at £8 10s. per ton and grey at about £15 10s.

Acids and Tar Products

Only a quiet trade had been put through this week in tartaric acid, but prices are maintained at up to 1s. 3¼d. per lb. Oxalic acid is a shade easier at 3d. to 3¼d. per lb., and buying interest is slow. A moderate demand has been experienced for citric acid and values are held at about 1s. 7d. per lb. Acetic acid is steady and in fair request, with 80 per cent. commercial on offer at £37 per ton and glacial at from £66 10s. to £67.

Pitch keeps firm at about £4 10s. per ton, f.o.b., but as a good deal of speculative interest is now being taken in this product there is a cautious attitude on both sides and actual business this week has been slow in consequence. Values of creosote oil also keep up at round 7½d. per gallon and a fair volume of inquiry is still met with. Crude carbolic is in short supply for prompt delivery and prices are a shade steadier at from 2s. 4d. to 2s. 5d. per gallon, with crystals on offer at 7⅞d. per lb. Solvent naphtha is dull and weak at 1s. to 1s. 1d. per gallon.

Benn Brothers' Annual Meeting

Chairman's Review of Trade Conditions

At the meeting of Benn Brothers, Ltd. (proprietors of The Chemical Age, etc.), on Thursday, August 4, the chairman (Sir Ernest Benn), in moving the adoption of the reports and accounts, said that the accounts, although they had reduced the annual improvement to a relatively small amount, still showed a better figure than ever. The improvement was a real one, and there was nothing in the nature of window dressing or adjustment behind the figures. The balance-sheet was a perfect example of the blessings of conservative finance, and that day they would be invited to take some tangible advantage from 31 long years of saving and reserve and caution. There never was a list of assets set out in seven simple categories more entitled to be described as assets in the very best sense of the term. Most valuable of them all, goodwill and copyright stood at a figure very little more than the annual trading profit. The figure was slightly higher than last year because they had bought the business of William Rider and Sons, Ltd., and had transferred to the subsidiary company the copyright of the Electrical Trades Directory. Second on the list of assets came Bouverie House, which stood at a few pounds more than the whole of the issued capital. Every pound share thereof represented, among other things, a full 20s. worth of bricks and mortar. The £57,286 invested in subsidiary and other companies was, except for one or two very small sums, employed in the most successful book publishing enterprise of recent times, to which they were good enough to give his name—Ernest Benn, Ltd.

Increase of Capital

No one would pretend that the capital account was commensurate with the size, value, and importance of the business, and the board had decided to take what he hoped might be only the first step towards making the nominal capital of the company approximate more nearly to the actual value of the property. After 31 years of saving, the reserve account had reached the total of £87,000. They were able this year again to place £10,000 to reserve, and it was hoped that in that respect they had by now established a regular practice. They were to be asked at an extraordinary general meeting to follow to consent to the capitalisation of some £70,000 of the reserve account, which would be distributed in the form of six per cent. preference shares, one such preference share being allotted in respect of every two ordinary shares. Advantage was being taken of the same extraordinary general meeting to increase the authorised capital of the company to a total of a quarter of a million sterling, which would include a third class of deferred share, 15,000 of these at the nominal value of 1s. apiece being created. The company would carry forward into next year's figures £18,756, by far the largest "carry forward" they had ever had—a figure which, seeing that it had already paid income-tax, would be sufficient to pay a full year's dividend on the whole of the capital.

As regards the trading of the year, they had had more than their share of difficulty. As the proprietors of a dozen trade and technical papers, their business was a barometer, reflecting week by week the state of the trade of the country as a whole. The 20,000 merchants and manufacturers who provided them with advertising revenue were for at least half of the year short of coal and under the necessity to limit production, and had, therefore, every incentive to economise in advertising. It was greatly to their credit that, notwithstanding this state of affairs, the advertising revenues again constitute a record. If their business was really a trade barometer, as he had suggested, they could claim that the trade and business of the country was in a much healthier state than one would be led to suppose from reading speeches of politicians. Trade depended upon personal endeavour, and their business was the result of a personal endeavour of—first, the magnificent staff; secondly, of their magnificent advertisers; and, thirdly, of the 100,000 individual traders who read their papers week by week.

The report and accounts were adopted and the dividend as recommended was declared.

At an extraordinary general meeting which followed, resolutions were passed for the capitalisation of £70,715 of the reserve account and for the increase of the capital of the company to £250,000.

Company News

INDESTRUCTIBLE PAINT AND STANDARD VARNISH.—No interim dividend will be paid this year. The company, which has an issued capital of £75,000, paid an interim in August of last year of 5 per cent.

FIFE LINOLEUM.—The directors recommend a dividend on the ordinary shares at the rate of 10 per cent. per annum for the year ended May 31 last. For the preceding period the payment was 15 per cent.

J. AND J. CUNNINGHAM.—After providing £9,158 for depreciation, the accounts for the year ended June 30 show a divisible balance of £45,820. A dividend of 5 per cent. is proposed on the ordinary shares, carrying forward £25,820.

BRADFORD DYERS' ASSOCIATION, LTD.—The board have declared an interim dividend for the year to December 31 current on the ordinary shares at the rate of 1s. per share, subject to income tax. The dividend warrants will be posted on September 1.

MINIMAX.—Net profits for 1926 were £15,008, and £14,868 was brought forward. Dividends of 9 per cent. on the Ordinary and 7½ per cent. on the Preferred shares and bonuses of 3 per cent. on both classes are proposed, adding £7,000 to the freehold premises reserve, and carrying forward £14,893.

LAUTARO NITRATE.—The local board, having resolved to issue monthly bulletins of the position of the company, have cabled the position as at July 31. Oficinas working :—"Chacabuco," "Los Dones," "Santa Luisa." To resume work early this month :—"Jose Francisco Vergara"; September—"Francisco Puelma"; September-October—"Anival Pinto," "Arturo Prat," "Caupolican." Nitrate movements :—Production July, 158,500 metric quintals; January to July, 918,000 metric quintals; exports January to July, 2,279,600 metric quintals; sales effected for delivery from June 16 up to December 31, 2,469,300 metric quintals; for delivery 1928, 590,400 metric quintals. Pending sales balance outstanding for delivery up to December 31, 1,696,400 metric quintals. Stocks at July 31, approximately, 1,465,000 metric quintals. Iodine movements :—Production from January to July, 1,775 quintals; exports from January to July, 503 quintals; stocks, July 31, on the coast and abroad, 2,943 quintals; association sales January to June, £132,462. Cash situation at July 31 :—Funds in bank, £111,129; currency, $3,003,143; overdrafts, nil; debentures—balance at December 31, 1926, £2,784,871; to cover £202,381, corresponding to amortisation due 1927, £175,040 has been invested in acquiring £200,638 nominal value; half-yearly interest paid June 1, £89,871; to be paid December 1, approximately, £84,500.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

DRUGS AND FINE CHEMICALS.—A manufacturers' agent in Trinidad wishes to represent manufacturers. (Reference No. 111.)

DRUGS, PERFUMES, ETC.—Vienna firm of old standing desires to obtain the general representation of British manufacturers of above, for Austria and the Succession States, and in the Near East, with or without stocks. (Reference No. 116.)

PERFUMERY AND TOILET ARTICLES.—A firm in Munich desires to obtain the representation for Germany, on a commission basis and as sole agents, of a British firm manufacturing the above. (Reference No. 118.)

Buell Combustion Co.

PARTICULARS are published for information only of the Buell Combustion Co., Ltd., which has an authorised capital of £250,000, and an issued capital of £173,507. The company was incorporated in May, 1927, to acquire from Bolton and Partners, Ltd., and the Buell Pulverised Coal Syndicate, Ltd., the Buell pulverised coal systems, the goodwill and business in connection with such systems, and the benefit of all pending contracts, including a licence granted to Babcock and Wilcox, Ltd., who have agreed to employ the systems for use with water-tube boilers.

New Chemical Trade Marks

Applications for Registration

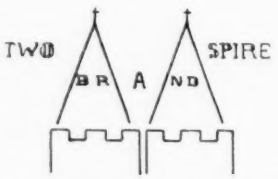
This list has been specially compiled for us from official sources by Gee and Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to September 3, 1927.

"BEDESYL."

No. 475,665. For dyes included in Class 1. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester; manufacturers. December 8, 1926. (To be associated, Sect. 24.)

No. 475,666. For dyes included in Class 4. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester; manufacturers. December 8, 1926. (To be associated, Sect. 24.)



No. 481,267. For zinc oxide included in Class 1. Zinc Oxides, Ltd., Albert Chambers, 26, High Street, Cardiff; manufacturers. June 2, 1927. (To be associated, Sect. 24.)

"LOZOT."

No. 481,583. For an anti-rust preparation for metal articles. Class 1. Sozol (1924), Ltd., 20, Copthall Avenue, London, E.C.2; manufacturers. June 15, 1927.

"BOCRA."

No. 481,790. For chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Class 1. Thomas Aspinall, Ltd., 6, 8, and 10, Bank Street, and Carlton Chemical Works, Water Street, Bolton, Lancashire; analytical and manufacturing chemists. June 22, 1927.

"CONQUEST."

No. 482,240. For chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Class 1. Jenson and Nicholson, Ltd., Goswell Works, Warton Road, Stratford, London, E.15; varnish, japan, and colour makers. July 6, 1927.

"HORMENT."

No. 481,397. For chemical substances prepared for use in medicine and pharmacy. Class 3. Horment Aktiengesellschaft für Herstellung Organischer Heilmittel (a joint stock company organised under the laws of Germany), Marburgerstrasse 9, Berlin, W., Germany; manufacturers and merchants. June 8, 1927. (To be associated, Sect. 24.)

"KAPUTINE."

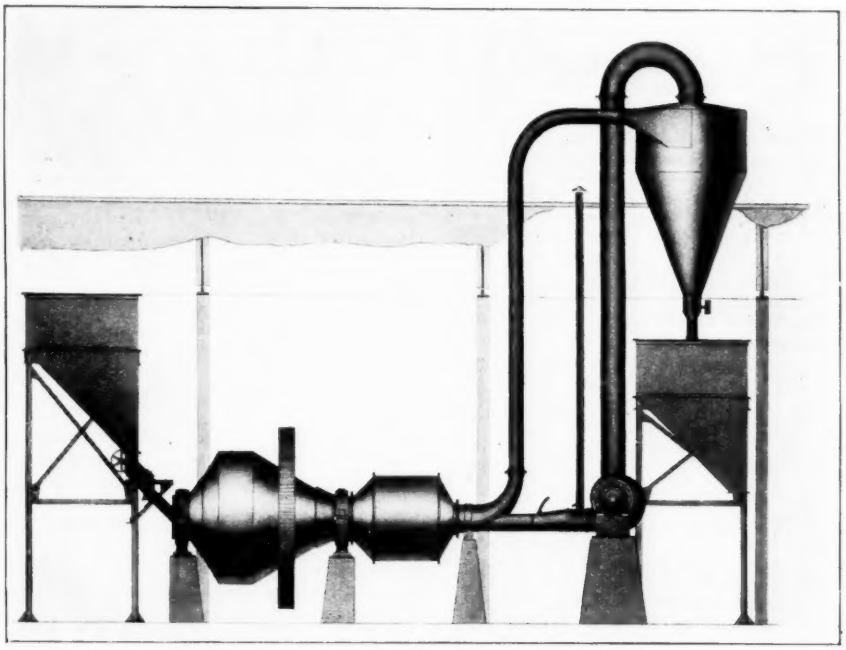
No. 480,348. For chemical substances prepared for use in medicine and pharmacy. Class 3. The General Kaputine Syndicate, Ltd., Lilley Street Laboratories, Lilley Street, Queen's Road, Manchester; manufacturing chemists and druggists. May 5, 1927. (To be associated, Sect. 24.)

"GLUKHORMENT."

No. 481,398. For chemical substances prepared for use in medicine and pharmacy. Class 3. Horment Aktiengesellschaft für Herstullung Organischer Heilmittel (a joint stock company organised under the laws of Germany), Marburgerstrasse 9, Berlin, W., Germany; manufacturers and merchants. June 8, 1927. (To be associated, Sect. 24.)

"TOPHET."

No. 481,775. For chemical substances prepared for use in medicine and pharmacy. Class 3. Lamberts (Dalston), Ltd., 60 and 62, Queen's Road, Dalston, London, E.8, and 49*a*, 49*b*, 49*c*, 49*d*, and 49*e*, Parkholme Road, Dalston, London, E.8; druggists' sundriesmen. June 21, 1927.



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The Hardinge Mill is the only slow speed mill that grinds by proportioning energy to work required.	The Reverse Current system of air classification requires less air (less power) than any system yet devised.	As no material passes through Exhauster the wear is negligible. Curved blades can be used which increase the efficiency 15% to 30%.	Elevating and Conveying are done by air under partial vacuum. No moving parts are used. This simplifies the operation and ensures an absolutely dustless plant.

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HARDINGE SYSTEM

(CLOSED CIRCUIT GRINDING)

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

RYMER AND CO., Dorning Street, Wigan, chemical manufacturers. (C.C., 13/8/27.) £16 14s. 10d. June 28.

STANDARD MEDICINE CO., LTD., 61A, Bold Street, Liverpool, canine medicine manufacturers. (C.C., 13/8/27.) £12 16s. 11d. July 7.

STANSFIELD, J., Boothfold, Waterfoot, Rossendale, chemical manufacturer. (C.C., 13/8/27.) £13 1s. 10d. June 15.

WOODBROOK DRUG CO., Vale Place, Merridale Street, Wolverhampton. (C.C., 13/8/27.) £13 7s. 9d. June 29; and £15 12s. 4d. June 28.

Mortgages and Charges

*[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]*

BILLING (CHARLES) AND CO., LTD., London, W.C., soap manufacturers, etc. (M., 13/8/27.) Registered July 28, £1,000 debenture, to A. J. Bennett, Kirkington Hall, Southwell; general charge.

STANDARD SOAP CO., LTD., London, E.C. (M., 13/8/27.) Registered July 25, £5,000 debentures; general charge (subject to existing debentures for £12,500 and £9,000). *£12,500. January 12, 1927.

Satisfaction

PRECIOUS (HAROLD), LTD., Bradford, dyers. (M.S., 13/8/27.) Satisfactions registered July 22, £812 (not ex.), registered October 21, 1925; and £438, registered December 12, 1925.

London Gazette, &c.

Company Winding Up Voluntarily

PREMIER FILM PRINTING AND CHEMICAL CO., LTD. (C.W.U.V., 13/8/27.) By special resolution, July 1, confirmed July 26. E. W. Houghton, 88/89, High Holborn, W.C.1, appointed as liquidator.

Partnerships Dissolved

DRINKWATER AND SMITH (Edmund DRINKWATER and Albert Wadsworth SMITH and Alexander WADSWORTH), dyers, "Ellistones," Greetland, Halifax, Yorks, by mutual consent as from June 30, 1927, so far as concerns E. Drinkwater, who retires from the firm. Debts received and paid by A. W. Smith and A. Wadsworth, by whom the business will be carried on.

WOOD AND CO. (James WOOD and James LOMAX), chemical merchants, 14, Lowton Street, Radcliffe, as from July 15, 1927.

New Companies Registered

ALLIED CHEMICAL CO., LTD. Private company. Registered August 8. Capital, £1,000 in £1 shares. To carry on the business of manufacturers of and dealers in chemicals, etc. Directors: N. H. Isaacs (chairman and managing director); M. Jonas.

BLYTHE COLOUR WORKS, LTD. Private company. Registered August 3. Capital, £20,000 in £1 shares. To acquire the business of a colour manufacturer now carried on by F. Wildblood at Cresswell, Staffordshire, as The Blythe Colour Works. The permanent directors are: F. Wildblood; Georgina Wildblood; N. R. Wildblood; D. R. Wildblood; Hilda R. Wildblood, F. W. R. Wildblood. Solicitors: Samuel Hayes and Son, Town Hall Chambers, Albion Street, Hanley.

BRITISH INSULITE, LTD. Private company. Registered August 3. Capital, £10,000 in £1 shares. To carry on the business of synthetic product manufacturers, manufacturers of electrical, insulating moulding powders, laminated cloth and paper, insulating cables, tapes, and products of all descriptions, and synthetic resin, varnish, paint, etc., and to adopt an agreement with W. A. Jones and A. Ogden. The life directors are: W. A. Jones (managing director); T. T. Pickthall; H. Horsfall (chairman).

FLEMING AND CO. (DUBLIN), LTD. Private company. Registered in Dublin August 4. Capital, £10,000 in £1 shares. To carry on the business of manufacturing contractors and agents for machinery, explosives, firearms, and all materials pertaining thereto and to mines and quarries, etc. Subscribers: W. G. Fleming (chairman and governing director); W. Ireland, 31, Robertson Street, Glasgow.

JOHNSON AND McLEAN, LTD. Private company. Registered July 26, in Belfast. Capital, £1,500 in £1 shares. To carry on the business of soap manufacturers, etc. Directors: J. Johnson, W. McLean, J. A. Culbert. Registered office: 273A, Donegall Road, Belfast.

RANJI FIRE EXTINGUISHERS, LTD. Private company. Registered July 29. Capital, £2,000 in £1 shares. To carry on the business of Randolph G. Croxford, patentee, manufacturer, and sole proprietor of a first aid, and automatic self-acting chemical fire extinguisher. Subscribers: R. G. Croxford (managing director) and W. Ayriss.

THE CHEMICAL AND INSULATING CO., LTD., was registered as a private company on August 3, with a nom. capital of £100,000 in £1 shares, to carry on the business of manufacturing, wholesale and retail chemists, druggists, drysalters, oil and colourmen, manufacturers of and dealers in pharmaceutical, medicinal, chemical, industrial, mineral and other solvents, products, preparations, and articles, magnesia, magnesite, asbestos, cork, and all fibrous articles and materials, rubber products and articles, oils, lubricants, paints, pigments and varnishes, soaps, flavouring extracts, dyes, celluloid, silk, artificial silk and plastic materials, spinners and weavers, manufacturers of and dealers in articles and materials capable of being used for insulation or protection, packing, and jointing or lining, and articles and materials composed of magnesia or asbestos, etc. Subscribers: J. Campbell and P. W. Campbell. Registered office: Cockerton, Darlington.

ARTHUR WHARTON (NORTHERN), LTD. Private company. Registered August 8. Capital, £10,000 in £1 shares. To carry on the business of dealers in coal, coke, by-products, products of tar distillation, chemicals, patent fuel, minerals, metals, etc. Subscribers: H. T. M. Roberts; A. Wharton (chairman and managing director). Registered offices: Mail Buildings, Hull.

Benn Brothers' Other Journals

THE CABINET MAKER.—Industry and Imagination; How to Display Metal Bedsteads; The Care of Carpets; American Furnishers' Visit; Inside of a Mattress—XXXIII; Information for the Public.

THE ELECTRICIAN.—"Loaded Telegraph Cables," by J. J. Gilbert; "Insulation and Short Waves," by C. F. Forbes-Buckingham.

THE FRUIT GROWER.—Pruning for Fruit Production: A Remarkable Suggestion; Current Fruit Practice; Gooseberries from Holland: Further Correspondence.

GARDENING ILLUSTRATED.—The Cultivation of the Newer Freesias; The Cause of "Double" Flowers; Early Chrysanthemums in Modern Form; Stone Splitting in Peaches.

THE GAS WORLD.—"Thoughts on Gas Distribution," by Walter Hole; The Year's Results of Municipal Gas Undertakings; The Use of Gas in Hospitals and Institutions.

THE HARDWARE TRADE JOURNAL.—Industrial Changes: Points from the Factories Report; Evading the Duty on Cutlery Imports; The Students' Notebook: A Chat on Hinges.

THE TIMBER TRADES JOURNAL.—Stability of the Markets; Forestry at the "Royal Welsh"; About West Coast Hemlock; Japan and Russia: Details of the Timber Concession.